BRITISH BIRDS

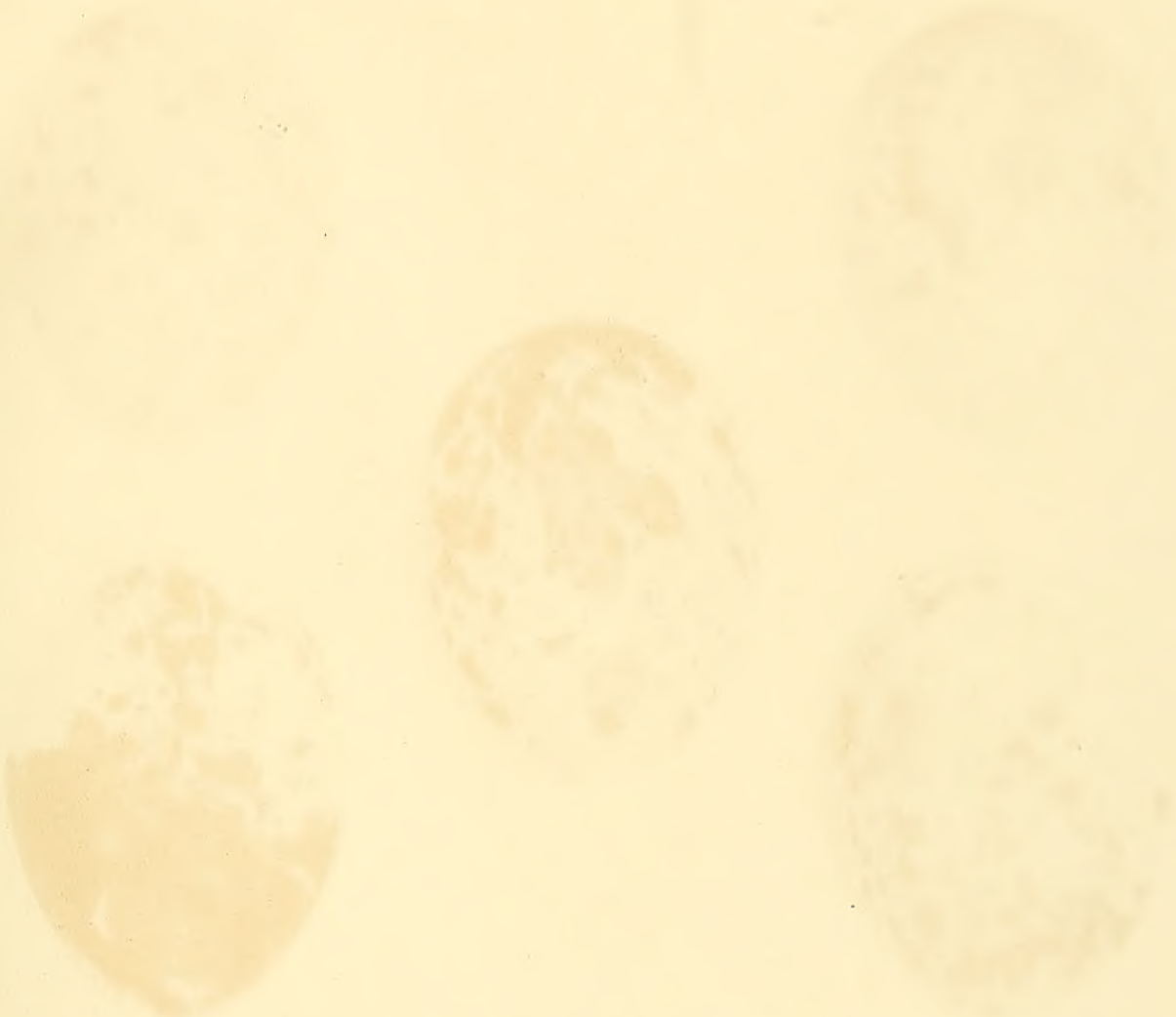
WITH THEIR

NESTS AND EGGS

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NATURAL HISTORY





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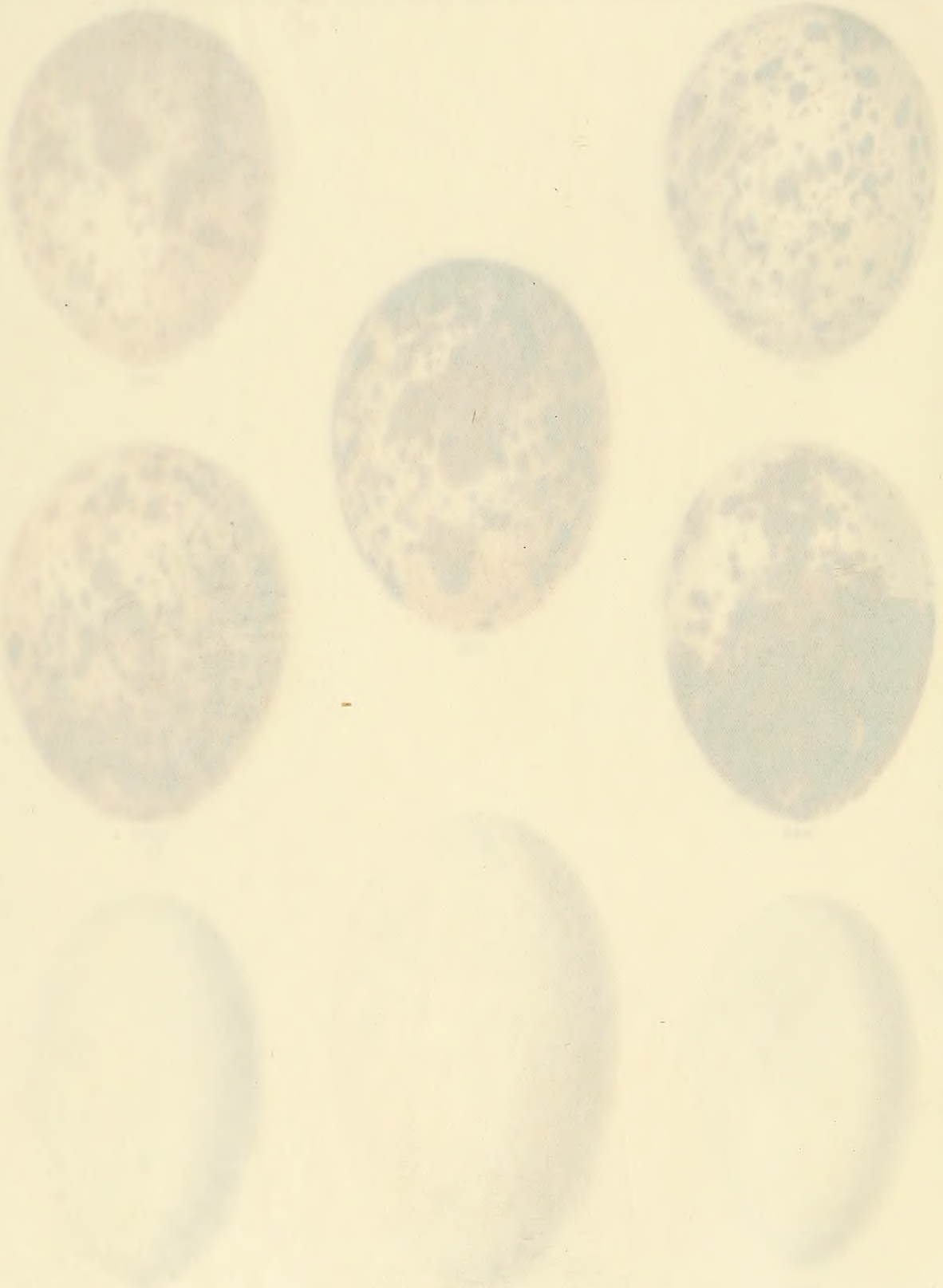


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BRITISH BIRDS

WITH THEIR

NESTS AND EGGS

IN SIX VOLUMES

ORDER PICARIÆ.

By ARTHUR G. BUTLER, PH.D., F.L.S., F.Z.S., F.E.S.,

ORDERS STRIGES AND ACCIPITRES.

By REV. MURRAY A. MATHEW, M.A., F.L.S., M.B.O.U.,

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ORDER STEGANOPODES.

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AUTHOR OF "A NATURALIST'S WANDERINGS IN THE EASTERN ARCHIPELAGO," &c.

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VOLUME III.

BRUMBY & CLARKE, LIMITED,

BAKER STREET, HULL, AND 5, FARRINGDON AVENUE, LONDON, E.C.

19-78578- Feb 14

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BRITISH BIRDS.

With their Nests and Eggs.

ORDER PICARIÆ.

TO the birds of this group I have paid less attention than to the *Passeres*, few of them being suitable subjects for study in captivity, excepting in Zoological Gardens. To thoroughly understand any bird, it is necessary to know its habits, both wild and in confinement.

Formerly the *Picariæ* were included in the *Passeres*, but careful study of their structure eventually induced Dr. Sclater to separate them as a distinct Order. Seebohm was of opinion that the *Picariæ* should include the Owls, but Howard Saunders appears not to have shared this opinion, and I do not profess to have studied the question sufficiently to be in a position to express any views.

As regards the British Islands, this Order is a small one, only twelve species having, in my opinion, any claim to be included in our list: these are referable to ten genera and eight families.

The British families of *Picariæ* are as follows:—*Cypselidæ* (Swifts); *Caprimulgidæ* (Goatsuckers); *Picidæ*, with two Subfamilies; *Junginæ* (Wrynecks) and *Picinæ* (Woodpeckers); *Alcedinidæ* (Kingfishers); *Coraciidæ* (Rollers); *Meropidæ* (Bee-eaters); *Upupidæ* (Hoopoes); *Cuculidæ* (Cuckoos).

Attempts have from time to time been made to keep most, if not all, of these birds in cages or aviaries; some of them I have myself attempted to keep; but, as a rule, the life of these birds in captivity is limited; and, unless I could secure a Roller or a Bee-eater, my measure of success with other members of the Order would not tempt me to repeat the experiment with any *Picariæ*.

As none of these birds are seed-eaters they are necessarily difficult to cater for, troublesome to keep clean, and their vocal performances do not pay for their food: on the other hand some of them are extremely beautiful in plumage, whilst Wrynecks and Woodpeckers, if successfully hand-reared, are remarkably tame and docile; though even then they must be kept in cages, unless a small aviary can be set apart for each species.

A. G. BUTLER.

FAMILY CYPSELIDÆ.

ALTHOUGH one would hardly suspect it if one compared the bills only, the Swifts are the nearest allies of the Humming-Birds. In their habits they are the most aerial of birds, their powers of flight being enormous; they are also, in my opinion, utterly incapable of rising from a perfectly smooth surface, although a very slight inequality will enable them to do so; for this reason, they very rarely descend to the ground.*

Jerdon (Birds of India, Vol. I, p. 169) says:—"The Swifts form a remarkable group of birds, organized specially both for speedy and continued flight, many of them being capable of sustaining themselves in the air for the whole day without once resting. They are distinguished from the Swallows by having only ten tail feathers, by the wings being longer, narrower, and more or less falcate, the first and second quills generally about equal, and the secondaries short and hidden by the coverts; by the smaller and differently formed bill, and by the structure of the feet. The gape is very wide; there are no rictal bristles; the tarsus is short, and the toes are short, with sharp, strongly curved claws."

To these characters Seebohm adds that the Swifts have ten primaries instead of nine; and the hind toe, especially its claw, is proportionately smaller than in the Swallows, and is often directed forwards.

Dr. Sclater, in his "*Notes on the Genera and Species of Cypselidæ*" (P.Z.S. 1865, p. 597) says:—"One of the most remarkable points in the structure of the *Cypselidæ* is the great development of the salivary glands. In all the species of which the nidification is known, the secretion thus produced is used more or less in the construction of the nest. In most cases it forms a glue by which the other materials are joined together, and the whole nest affixed to the rock, wall, or other object against which it is placed. In some species of *Collocalia*, however, the whole nest is made up of inspissated saliva, and becomes the edible bird's nest so well known in the east.

The eggs of the *Cypselidæ* appear to be always regularly oval in shape, and colourless."

* On a perfectly level road I have seen a Swift struggling to rise and perfectly helpless, so that a gentleman picked it up and brought it into our hotel; there it was placed upon the carpet in which its claws became entangled, so frightening it that it feigned death. It was then thrown out of the window and fell [illegible] foot or two of the ground when it suddenly opened its wings and sailed away.

Family—CYPSELIDÆ.

THE SWIFT.

Cypselus apus, LINN.

BREEDS throughout Southern Europe, and in Norway as far north as lat. 69°; also in Dauria, Mongolia, N. China, Afghanistan, Cashmere, Turkestan, Persia, Asia Minor, and Palestine; in Northern Africa, Madeira (where it is resident) and the Canaries: in Natal and the Cape it is not known to breed, although it is said to occur there throughout the year.* It has occurred in Russia as far to the north as Archangel, and westwards it has straggled to the Færoes. On migration it visits the Punjab, and has once been recorded from the Andaman Islands, whilst in Africa it wanders to the extreme south.

The Swift arrives in the south of Great Britain towards the end of April, but rarely reaches the north before the beginning of May, although it has been seen in the Shetlands as early as the 27th of April. Most of the birds have left again by the end of August, though stragglers have been seen as late as November. It is found in all suitable localities throughout the British Islands excepting in the Outer Hebrides where it has only been seen once or twice. It has visited St. Kilda.

The general colour of the Swift is deep silky sooty brown, the feathers of the back and rump somewhat blacker towards the tips; the chin and throat are dull silky white: bill black; feet dark brown; claws black; iris dark brown. Both sexes are similar in plumage. Young birds have the feathers of the upper parts, including the wings, very narrowly edged with greyish white, and the chin and throat whiter than in adults.

This bird may be met with almost anywhere from the cliffs on the sea-coast to the inland towns and villages; on mountain or plain it is equally at home. Stevenson speaking of it as met with on the sea-shore says:—"suddenly the sharp

* Messrs. Butler, Feilden, and Reid (Zoologist, 1882, p. 205) in their "Ornithological Notes from Natal," say of this species:—"Seen in considerable numbers at Durban and Maritzburg in April; one was noted at the latter place on the 15th August, and it was common there on the 30th of that month (R). Towards the middle of September Swifts made their appearance in the neighbourhood of Newcastle, where they were afterwards common. They must breed, in our opinion, in the crevices of the rocky ravines, otherwise why should they choose their particular spot, fly constantly in and out of it throughout the day, sometimes remaining there for a long time, screaming loudly the while? In Tiger Kloof, near Newcastle, Reid found them numerous, and all apparently nesting. One pair kept flying in and out of a hole in a rock just out of his reach, regardless of his presence, and appeared to have young. This was on the 11th November."



SWIFT ♂

screech of the passing Swifts is heard as they swoop past us in their mad career, and still rings upon our startled ears long after their marvellous powers of flight have borne them beyond the range of vision. Soon they return again, rising and falling in amorous chase, or wheel in devious circles high up in the blue vault of heaven; revelling apparently in the intensity of the heat and the cessation for a time from parental duties. I have often noticed this habit in the Swifts, of leaving the church towers and other nesting places about the noon-hour, as if to stretch their cramped limbs, and seek their food at a time when their eggs would least suffer from temporary exposure. There is another period, too, when the Swift almost invariably appears abroad, though previously perhaps, unseen for hours. The air is hot and stifling, and a sudden gloom creeps as it were over the earth and sky. An almost painful stillness is broken only by the chirping of the Sparrows under the tiles, already conscious of a coming storm. Dark angry clouds are drifting across the heavens, and one broad mass, perceptibly increasing and assuming each moment a deeper shade, bespeaks the lowering tempest. Now, as we stand watching that strange yellow light, which spreads itself for awhile over surrounding objects, as one by one the heavy drops foretell the drenching shower, strange dark forms are seen sweeping through the air in the very 'eye of the storm,' and the sooty plumage of the Swifts contrasts even with the blackest portions of the surrounding atmosphere. No wonder, then, that their appearance at such times, issuing from their fastnesses as the very 'demons of the storm,' coupled with their 'uncanny' looks and thrilling cries, should have won for them in a superstitious age the local name of Devilins." (Birds of Norfolk, pp. 343-4).

The above is so accurate a description of what one has frequently witnessed, that it seemed a pity not to quote it: but it is not only in such a situation that the lightning-like flight of the Swift is a thing to marvel at. As one wanders through some country lane glancing from side to side at the hedge-rows in search of nests, a dark figure swiftly glides past, sweeps almost to the ground, rising just clears the top bar of the stile which closes the lane, and is gone in an instant; watching its headlong flight, one would have deemed it impossible that it could thus by a few inches evade an obstruction in its path: but when at full speed the Swift seems to have perfect control over itself in the air, whereas in a confined space it blunders up against everything, however slowly it may fly.

The nest of the Swift, which swarms with fleas and ticks, is placed in crannies in cliffs, old ruins, church towers, under roofs or thatches of buildings, in cowls of oast-houses, or hollow branches of decayed trees. The structure is flattish and roughly formed of straws, grasses, feathers, moss, wool, and cotton; glued together

with the viscid saliva secreted by the bird. The number of eggs is normally two; four eggs have been found in one nest, but it has yet to be proved that they were the product of the same hen; they are somewhat elongated ovals of a dead white colour. Only one brood is reared in a year. The young are generally hatched in June.

Swifts have been known to lay in the nest of the House Martin, as recorded by the late Mr. Bond and Mr. G. E. Lodge. The egg figured is from my collection.

The food of the Swift consists of minute insects caught upon the wing, and when feeding its young it appears to store these up until it has secured a good mouthful: it does not seem to follow the practice of most birds which give their young little at a time though at short intervals, but satisfies their cravings with heavy meals occasionally, during the day.

The Swift is incapable of song, but its scream is satisfying; having heard it, one wants to hear no more.

In captivity this bird is of no value. In the first place it leaves the nest quite able to earn its own living; and, when captured, it refuses to be fed. In August, 1891, a young bird in pursuit of flies passed through an open window into my house, and, falling upon a perfectly smooth and level surface, could only tumble about helplessly. I picked it up and tried to persuade it to eat a blue-bottle fly, but it would not open its mouth; so I did this myself and inserted the fly, which it allowed to escape. I found, after one or two trials, that the only means by which I could compel it to eat was by opening its mouth wide, putting the food far back and holding its beak shut until, by the convulsive movement in its throat, I knew it had swallowed. The bird was insufferably stupid; and when I compelled it to fly in a room, it fluttered slowly round, striking the first piece of furniture which came in its way and falling to the ground, where it dragged itself about slowly, but was utterly unable to rise. Hancock's and Naumann's experiences were not mine; struggle as it might, the Swift could not lift itself from oilcloth or carpet; nor, when flying, did it make for the window. It died on the third day.



ALPINE SWIFT ♂ ½

Family—CYPSELIDÆ.

THE ALPINE SWIFT.

Cypselus melba, LINN.

SEEBOHM gives the following as the distribution of this species:—"breeds in the alpine districts of Europe south of the Baltic, in the Ural Mountains its range extending up to lat. 55°. South of the Mediterranean it breeds in the mountains of North Africa and Abyssinia. Eastwards its range extends through Asia Minor, Palestine, West Turkestan, the West Himalayas, and the mountain ranges of West India and Ceylon. In Abyssinia, India, and Ceylon, it is said to be a resident; but further north it is only a summer visitor, leaving in autumn to winter in Damara Land, the Cape Colony, and Natal. In the cold season it is occasionally seen in most parts of India as far east as Calcutta; and it has occurred more or less accidentally on migration in Denmark, Heligoland, and various parts of the plains of Germany as far north as Berlin." Messrs. Butler, Feilden, and Reid (Zoologist, 1882, p. 206) express their conviction that this species breeds in South Africa, Capt. Reid having shot a female with eggs very much enlarged on the Incandu River: as specimens were seen in August, November, and April, it would almost seem as if this species might be resident in the South.

In the British Islands the first recognized specimen of the Alpine Swift was shot off the South coast of Ireland; several others have since been obtained from the same island, whilst in England about a score have occurred, but in Scotland hitherto it has not been met with.

This species has the upper parts, a broad belt across the breast, the flanks, and under tail-coverts mouse-brown, the back and tail with a slight purple gloss; lores blackish; chin, throat, and abdomen pure white: bill and feet black; iris deep brown. The sexes are alike in plumage. The young have well-defined pale margins to the feathers, rather more white on the throat, and dark shaft-lines to all the white feathers. In the autumn the plumage is deeper in colour, and in spring it is said to become iridescent.*

* Seebohm claims that the Swifts moult twice in the year, on as it seems to me very slender evidence, viz:—That two examples of this species in his collection shot on the 3rd August and 12th April respectively are 'moulting' a quill-feather in each wing. Naumann states positively that they only moult once.

The Alpine Swift chiefly frequents mountains, craggy ravines, and frowning cliffs. I first saw it near the top of the Weissenstein, near Soleure, in Switzerland in 1867, and a week or two later when crossing the Gemmi Pass; the birds in the first instance numbered about a score, and they frequently wheeled so near to Hewitson and myself that their enormous stretch of wing could be clearly noted; at that time, unfortunately, I had not commenced to take a very deep interest in bird-life; so that, with the exception of this species and a few of the more prominent *Accipitres*, I paid but little attention to my present favourites; happily for me old Hewitson was an enthusiast and loved birds quite as dearly as he did butterflies, and possibly his delight in pointing out his feathered friends to me may first have awakened in my mind the desire to know more about them.

The nest of the Alpine Swift is usually placed in crevices of rocks, or in holes in cathedral or church towers, or any other building suited to the purpose; when placed in holes in cliffs or mountains it is usually quite inaccessible; it is a flattish structure composed of straws, dry or green grass, fir-bark, bits of paper, and feathers. The eggs are two in number* pure dead white, having little or no gloss.

The young are nourished in the same manner as with the Common Swift, and, although occasionally fed upon the wing by their parents, are able to provide for themselves when they leave the nest. It is curious to notice what a difference there is in various species of birds in this respect: the N. American Mocking-bird is said to leave the nest before it is even able to fly, and this appears to be frequently the case with the Nightingale; on the other hand the Java Sparrow, although it expects to be fed for about eight days after it leaves the nest, may be seen pecking away on its own account on the day of its flight: this is also frequently the case with the little Zebra-finch.

Although not a large bird, the wings of the Alpine Swift have an expanse from tip to tip of at least twenty inches; it is therefore not surprising that its flight is inconceivably rapid. At times it flies at an enormous height, but frequently at no great distance from the ground: in its aerial movements it resembles the common species.

Jerdon says of the Alpine Swift:—"This fine Swift is not rare in the south of India, all along the range of Western Ghâts from Honore to Cape Comorin, extending its daily flights often to the western sea-coast, and occasionally eastwards to Salem, Madura, and Madras even. At times they are very abundant on the Neilgherries, and, during the cold weather, may very generally be seen on the Malabar Coast. I saw, on several occasions, large flocks of them flying eastward

* As many as four have been found in one nest, but these were probably the produce of two females.

towards the sea from the rocky hills near Madura about sunset. On another occasion I saw, at mid-day, an enormous flock of them flying eastwards from the same range, a little south of Madura; these, however, were probably merely taking their ordinary rounds of a few hundred miles, but the others flying seaward at sunset—where were they bound for?

I discovered one roosting place of this Swift on the magnificent precipices at the falls of Gairsoppa. Here, especially on the cliffs on each side of the great fall, above 900 feet perpendicular height, these Swifts were congregated in vast numbers, and from the way in which some of them remained about the cliffs at all times of the day, I have little doubt but that they breed here. Is it possible that all the Alpine Swifts that traverse the south of India, with such amazing speed, meet here nightly for roosting, and for breeding in their appointed season, or are there other similar places of resort for them along the chain of western Ghâts? However this may be, my own impression, from long observation on the west coast of India, is, that such of these Swifts as have been questing at great distances from their roosting haunts, fly first towards the coast, and then make their way along the sea side, picking up stragglers from other regions on their way to the cliffs of Gairsoppa, or other similar precipices. At Tellicherry, I frequently saw them early in the morning along the sea coast, always flying southwards."

Speaking of the Swifts at Bern, W. Warde Fowler (Summer Studies, pp. 21, 22) says:—"The streets and squares resound with their shrill voices, and they nest under the eaves of the hotel I frequent. These are of the common species; but if you stand anywhere near the cathedral and look up, you will see, generally higher in the air than the others, numbers of the splendid Alpine Swift, circling round with marvellous speed. You can tell this bird at once by his white belly, which almost glitters in the sunshine, and by the ease and dignity of his flight; he does not use his wings so rapidly as the other, but sweeps along almost without an effort; and he does not scream so wildly, but whistles to his sitting mate as he sails around the tower, or utters a crescendo chatter, which seems to end fortissimo as he comes near to you."

"What can be happier for such an aerial bird than to be able to sweep round and round a lofty tower unimpeded by walls of rock? So it has come down from its mountains to the plain, and taken possession of the noble tower at Bern. There it builds a curious flat nest, formed of dried leaves, bits of paper, and of fir-bark, with a few feathers, on beams and ledges within the tower. Like the Chinese bird whose nest is eaten in the East, it secretes a saliva with which to glue these materials together; for in wind-swept caves and towers they could hardly

be held together without some such device. The glutinous mass is very apparent in the nests exhibited in the Museum at Bern, which are hardly pleasing in appearance, being not unlike a series of ancient and gruesome cheesecakes well flattened. The eggs are pure white, and of an elongated oval shape."

The food of the Alpine Swift consists of small insects caught upon the wing; the harder and indigestible portions are subsequently cast up in the form of pellets. For avicultural purposes this bird is useless.

Family—CYPSELIDÆ.

THE NEEDLE-TAILED SWIFT.

Acanthyllis caudacuta, LATH.

ONLY two examples of this species have been obtained in Great Britain, the first near Colchester, in July, 1846, and the second in Hampshire towards the end of July, 1879 (a third being seen at the same time). This Asiatic species can only be regarded as an accidental straggler to our shores. When there is an interval of thirty-three years between the first and second appearance of a species one may vaguely comprehend the likelihood of its ever being seen by the readers of the present work.

FAMILY CAPRIMULGIDÆ.

EXTERNALLY the Nightjars agree with the Swifts in having a small bill, wide gape, ten primaries, and the same number of tail-feathers: but according to the late Prof. Huxley they differ considerably in the modifications of their cranial bones. Jerdon says that their general anatomy is much like that of the Cuckoos, and Seebohm observes that the muscles and digestive organs approach those of the Bee-eaters and Rollers.

In the sober soft colouring of their plumage the Nightjars somewhat resemble the Owls, whilst their long tails more nearly approach those of the Cuckoos: they are almost cosmopolitan, but are absent from the Arctic regions, from New Zealand, and Polynesia.

In their habits these birds are chiefly nocturnal, they frequent not only open moorland and heath, but also well wooded country. They lay their eggs, usually two in number, on the bare ground. Their food consists of insects caught upon the wing.

Although there are about ninety species of Nightjars, only one genus *Caprimulgus*—chiefly characterized by its numerous and strong rictal bristles, is represented in our islands. Of this genus three species have been obtained; but only one, in my opinion, has a right to be called a British bird, only a single example of each of the others having been known to visit us.

Whether it would be possible to keep Nightjars in aviaries, it is difficult to say without experiment; but it seems extremely improbable; and, in any case, the result would be most unsatisfactory: that these birds can be reared from the nest and kept for a time in a cage has been proved in Germany, but I should expect them to behave in the same manner as the *Hirundinidæ*—gorge to repletion and take little or no exercise: moreover, being practically birds of darkness, they must be almost as dull as Owls in the daytime, and the aviculturist having neither bright plumage nor song to compensate him for his trouble in fostering them, must be satisfied to keep and worry over them simply for show purposes—which, to my mind, is one of the worst purposes to which any bird-keeper can devote his leisure time.

Family—CAPRIMULGIDÆ.

THE NIGHTJAR.

Caprimulgus europæus, LINN.

ALSO known as Goatsucker, Fern-owl, Churn-owl, Eve-jar, and Night-hawk. It breeds throughout Europe and as far north as 63° N. lat. in Scandinavia and West Russia; also in South-west Siberia and eastwards as far as Irkutsk: in Asia Minor, Palestine, the highlands of Persia, Turkestan, Afghanistan, and North-west India. On migration it occurs in Sind, Arabia, Malta, North-east Africa, and the south of Spain. It winters in North-western and Southern Africa, having been met with in the Cape, Natal, and the Transvaal: it is also believed that a few pairs remain to breed in North-western Africa.

To the British Islands this bird is a summer visitor, being most numerous in the more southern counties of England than elsewhere;* in Scotland, and especially the inner western islands, it is fairly common, but to the Orkneys and Shetlands it is a mere straggler, whilst on the Outer Hebrides it has only once been met with. In Ireland it is local, but nevertheless occurs in suitable localities.

The general colouring of the Nightjar is ashy-grey, varying to buff; the feathers being barred and spotted with dark brown and cinnamon, and with blackish shaft-lines which are most strongly defined on the head and scapulars; the male has broad white tips to the outer tail-feathers, and large white spots near the centre of each of the three first primaries; also a white patch on the cheeks and on each side of the throat, whereas in the female these patches are buff: bill dark horn; feet horn-brown, middle toe pectinated; iris almost black.

In young birds the spots on the wings and tail are buff, and smaller than in adults, whilst the pectination of the middle toe is not much developed.

This bird does not seem to be exclusively limited to dry moorland, for in 1886 Mr. O. Janson and I heard its jarring purr night after night in the neighbourhood of the Ormesby Broads, and now and then the so-called whoop of the bird would startle us as we stood listening to the incessant vibration; whilst now and again we caught a glimpse of one of these ghost-like creatures as it flashed by on noiseless wing. When flushed, however, the Nightjar as it rises from the

* Mr. G. T. Porritt, F.L.S., says that it is very common in all the moorland woods in Yorkshire.



NIGHTJAR

ground cracks its wings together over its back (so Mr. Frohawk tells me) making a sharp loud noise.

Stevenson says that in Norfolk, "although the enclosure of late years of commons and waste lands has banished them from many of their former haunts, they are still common enough on the wild heathery districts in the western and south-western parts of the county, as well as in the vicinity of the coast," and he adds:—"they are particularly partial to the vicinity of woods and plantations, where, like other nocturnal feeders, they rest during the day if undisturbed; although, occasionally, as noticed by Messrs. Sheppard and Whitear, a single example has been seen hawking for food on the wing in the middle of a bright sunny day."

Lord Lilford (Birds of Northamptonshire, pp. 242-3) observes:—"In many of the southern counties of England this bird is very common, and we have often seen as many as a dozen individuals in a summer evening's stroll in various parts of Devonshire, whilst the air resounded with their curious note, which is difficult to describe, but has been compared to the sound of a spinning-wheel. We have occasionally noticed the Nightjar during this performance, which appears always to be produced whilst the bird is at rest; but these birds frequently utter a very different note whilst flying, which the editor of the fourth edition of Yarrell's 'British Birds' likens to the swinging of a whip-thong in the air.* This species generally arrives in this country in the first fortnight of May, we have found eggs on the 21st of that month: no nest is made, the eggs being laid on the bare ground, and the same spot used year after year. So much do these birds adhere to their favourite nesting-haunts that, on one occasion, in Merionethshire, on asking a lad if he knew of any 'Fern-birds'' eggs, he told us that he had not seen any that season, but could take us to some at once, and immediately did so, the eggs in four out of five cases being found on, or within a few inches of, the spot on which our companion had found them in previous years. The Nightjar's complement of eggs seems never to exceed two; their ground-colour is white, with a varied and beautiful marbling of various shades of brown and lilac; to our eyes they are amongst the most handsome of British birds' eggs. The flight of the Nightjar is silent, rapid, and buoyant, with constant twists whilst in pursuit of prey, which consists principally of moths and cockchafers; in Devonshire the small chafers, locally known as 'fern-web,' appear to be the favourite food of this species. This bird, though fond of the shade, delights in warmth, and may often be found basking upon bare stony spots in old quarries and similar localities in full glare

* Mr. Frohawk reminds me that this note is similar to that made by some of the waders *hoo-whit—hoowhit, hoowhit.*—A.G.B.

of the sun, nor, in spite of its crepuscular habits, does its sight appear to be at all affected by bright sunshine; it is very frequently found on sandy roads and paths, where it dusts itself, after the manner of the game-birds."

Although eggs of this species are occasionally found before the end of May, they are rarely deposited before the end of June. It has been said that the Nightjar only rears one brood in the year, and this may perhaps be the case, but if the first eggs are taken it certainly lays again, for fresh eggs have been obtained as late as the 19th August (cf. Zoologist, 1883, pp. 380 and 429). Mr. J. H. Gurney, Junr. (l.c.) observes that according to his experience "eighteen days is the period of incubation." Of the eggs figured on plate viii, figs. 257 and 262, are from Mr. A. B. Farn's collection, and the remaining four from Mr. Frohawk's series: my own eggs resemble one or two of these varieties, and therefore were not required. Mr. Frohawk has taken eggs early in July: he has known a male Goatsucker to roost for a whole season upon the same old furze branch; he has timed the whirring note, which is often continued until after 11 p.m., and has heard the same bird keep it up without cessation for over a quarter of an hour.

To show what enormous quantities of insects a Nightjar destroys Mr. Frohawk says that in August, 1880, he shot a female in whose mouth were twelve moderately large *Noctuid* moths, several of which were still alive: and as evidence of the difficulty of putting up a sitting female, he notes that on the 21st June, 1874, his brother was out moth-catching, and seeing a moth which he wanted stooped to box it, almost kneeling on a Nightjar, which rose from just below his knee, exposing two partly incubated eggs.

This species was exhibited at the sixth exhibition of the Ornis Society, in Berlin, and Dr. Karl Russ thus speaks of it:—"Mrs. Kalwach who came over expressly to the Ornis Exhibition and brought with her many saleable birds, also showed amongst them some very remarkable rarities, owing to which the collection was at a premium. Three Night-swallows *(Caprimulgus europæus*, L.*)* excited most attention, since they had previously never been seen alive at any exhibition or any zoological garden—and rightly too, as the difficulty of rearing these birds is best illustrated by the fact which Engineer Pallisch (co-editor of the Proceedings of the Ornithological Society of Vienna 'Die Schwalbe') has published therein, namely—that in no instance have Night-swallows survived, which have been nourished in captivity; in every case, at much about the same age, they have infallibly become permanently constipated. The Night-swallows at the Ornis Exhibition were, however, tolerably sprightly, and will we hope fall into the hands of a bird-keeper who will be able to look after them, not only with care, but with full intelligence." Gefiederte Welt xx, p. 100.

Family—CAPRIMULGIDÆ.

THE RED-NECKED NIGHTJAR.

Caprimulgus ruficollis, TEMM.

A SINGLE example of this species, said to have been shot at Killingworth, was recognized by Mr. John Hancock, in the shop of Mr. Pape at Newcastle, in October, 1856. The claim of this bird to be regarded as British is therefore extremely slender.

Family—CAPRIMULGIDÆ.

THE EGYPTIAN NIGHTJAR.

Caprimulgus ægyptius, LICHT.

ONE specimen of this bird was shot in Nottinghamshire, in June, 1883. It can only be regarded as a chance straggler to Great Britain.

FAMILY PICIDÆ.

THE Woodpeckers and Wrynecks are allied to the Nightjars, Swifts, and Passeres in their cranial characters, to the Kingfishers, Rollers and Bee-eaters in the form of the breast-bone, but in the structure of their muscles and digestive organs to the Kingfishers and Hoopoes. They have a long worm-like tongue, spined at the tip and capable of being exserted for a considerable distance from the bill; it is also coated with a viscid secretion by the action of the salivary glands. The toes are specially formed for climbing, two toes being placed in front and two behind; the bill is long and wedge-shaped; the wings have ten primaries and the tail consists of from ten to twelve feathers.

Two Subfamilies of Woodpeckers are represented in the British Isles, the *Lynginæ* (Wrynecks) and *Picinæ* (true Woodpeckers): the former differ from the latter in their somewhat shorter bills, their tail-feathers, which are ten in number, soft, instead of stiff and pointed, and their first primary small.

All the Woodpeckers breed in holes, usually in trees, making no nest, but laying their eggs on the rotten wood at the bottom of the hole; the eggs are always pure white and shining. The whole of the *Picidæ* are climbing birds, capable of running up the trunk of a tree with great speed; the true Woodpeckers obtain most of their food by tapping on the bark until they discover a hollow spot into which they dig with their strong bills extracting therefrom both larvæ and insects, but the Wrynecks and some of the Woodpeckers live largely upon ants, which they obtain upon the ground, whilst some of the American species eat nuts, fruit, and probably eggs.

The flight of the Woodpeckers is somewhat irregular and undulating, and their notes are mostly harsh.

If hand-reared the *Picidæ* are perhaps the most suitable of all the European *Picariæ* for avicultural purposes; but, as Swaysland observes:—"It is always advisable to keep these birds separate from their own species, as they invariably fight, and will even kill one another, as we can unfortunately vouch from experience. The young had better be placed in separate baskets when about a fortnight old."



WRYNECK ♂

Family—PICIDÆ. *Subfamily—IYNGINÆ.*

THE WRYNECK.

Iynx torquilla, LINN.

BREEDS throughout the greater part of Europe, though sparingly in the extreme south, where, however, a few appear to winter; northward it occurs in summer up to lat. 64° in Scandinavia and Western Russia, though not so far north in Eastern Russia. Its range in Asia is very extensive: it breeds in Western Siberia northwards to lat. 60° and eastwards to Kamtschatka, southwards to the Altai Mountains; it also breeds in Japan, where it is common; passes through North China and Afghanistan on migration, winters in South China, Burma, and India; it breeds in the Himalayas and throughout Turkestan. In Africa it is believed to be resident in Algeria, passes through Egypt on migration, and is said to winter to the south of Abyssinia.

Of its distribution in the British Isles Howard Saunders says:—"It is a regular spring-visitor to England, sometimes arriving in the south by the middle of March, though usually about the first half of April; for this reason it is often called 'Cuckoo's mate' or 'leader': names which have their equivalent in several European languages. In the south-eastern counties it is more numerous than in the west, and it is rare in Wales; Lancashire has seldom been visited by it of late years, and to Cumberland it is now merely a straggler; in Yorkshire and Durham it is very local, and it becomes rare in Northumberland. Statements that it has nested in Scotland require confirmation, but at intervals it has been known to wander as far north as Caithness, the Orkneys, and the Shetlands; also to the Færoes. In Ireland it was taken in co. Waterford in the summer of 1878, and on the Arran Islands, off Galway Bay, on October 6th, 1866. By the latter part of September it has usually left England for the south, but Mr. A. H. Upcher asserts that he saw and heard one in Norfolk on January 1st, 1884." (Manual Brit. Birds, p. 261.)

The upper parts of the Wryneck are pale ashy-grey, all the feathers tipped with rufous brown and barred with black in the male, tipped with pale sandy brown and narrowly barred with black in the female, the back in both sexes, and the nape and scapulars in the male, streaked with black; centre of back washed with brown; the wings of the male are dull tawny, of the female sandy brown, finely reticulated with

blackish and boldly marked internally by clear spots of the ground-colour, bounded in front by black anchor-shaped markings; the primaries have the inner webs smoky black; more or less flecked with dull tawny or sandy buff, the outer web regularly barred with tawny and black alternately; the tail is ashy brownish, reticulated or mottled with black and barred with black and buff; the under parts are pale buff, the feathers with a narrow subterminal black bar; the male with throat and breast washed with tawny; the bill and feet are horn-brown; iris dark brown. In addition to its duller and paler colouring both above and below, whiter flanks and centre of abdomen, its much inferior size and considerably shorter and weaker bill readily distinguish the female. The young chiefly differ in the more heavily barred under parts.

Owing to the resemblance in colouring which the plumage of this bird exhibits to the lichen-covered bark of trees, it is doubtless frequently overlooked; yet it is less a bird of the woods than the true Woodpeckers, and therefore one might have expected to see it more often than one does, but doubtless its extreme shyness has much to do with it. Its favourite haunt appears to be an old orchard where decayed and lichen-covered trees abound, and here one may sometimes see it passing with wild, uncertain flight from one tree-trunk to another. After alighting it stretches its neck and twists its head about from side to side in the peculiar manner which has probably earned it the title of 'Snake-bird.' Sometimes in shuffling up the tree it uses its soft tail as a support after the fashion of a Woodpecker, but at other times it is held clear of the trunk.

In addition to orchards, the Wryneck may be met with in gardens, plantations, tall hedgerows, and parks or even on open commons. When on the ground the Wryneck hops somewhat irregularly, its tail and sometimes its wings being used, the former being jerked laterally.

Unlike the Woodpeckers, the Wryneck never excavates a hole for the reception of its eggs, but utilizes one already existing, usually in the trunk of a tree, and whether the cavity be deep or shallow seems to be immaterial to this bird.* Sometimes, as I proved in 1887, a hole in an earth-cutting is taken possession of. No nest is formed; the eggs, five to ten in number, are deposited upon the rotten wood or crumbled earth at the bottom of the hole. In colour they are pure shining white, with a rosy tinge when freshly deposited, the yolk showing through the thin though hard shell.

In 1872 Mr. Frank Norgate took forty-two eggs from one nest of this bird

* Mr. W. Ruskin Butterfield, writing from St. Leonard's, says:—"A rather unusual site is resorted to in this neighbourhood by a pair of Wrynecks for breeding purposes. As sometimes happens, the larger part of a tree has been broken off by the wind so as to leave a stump about a yard high; and this by some means has been bored vertically almost the whole of its length, so that the chips upon which the eggs lie are less than a foot above the ground." Mr. Butterfield also confirms my observations as to its mode of flight.

in an old stump; it being known that if the eggs are removed the Wryneck continues to lay. In 1873 he repeated the action, but in 1874 the poor thing appears to have been so weakened by the strain on her reproductive powers that only one egg was deposited, and after that year she was seen no more. To my mind for a man persistently to rob a bird of every egg through two successive seasons seems bad enough, even if his object was to prove the productiveness of the species, but I cannot understand how he could have the hardihood to make his action public.*

The Wryneck is a very close sitter when once its clutch is complete, and whilst the young are only partly feathered the female only goes off the nest when the male bird relieves her; thus it is no uncommon thing for one or other of the old birds to be caught upon the nest by the egg-collector, when it hisses like a snake, pecks at his fingers and finally feigns death. After leaving the nest the young accompany their parents and are fed by them for a time. Nidification takes place from the middle of May to the middle of June; or, if the bird has been disturbed, sometimes a little later. The egg figured is from my collection.

Towards the end of June, 1880, I noticed a Wryneck examining a decayed apple-tree in an orchard at Bobbing in Kent. One of the holes in this tree had been occupied the previous year by a Robin, the remains of whose nest still lay at the bottom of the cavity. Previously I had not taken the eggs of the Wryneck and therefore I was interested in more senses than one. Watching the bird through my glasses I was convinced that it had decided to take possession of the Robin's old nest; but, as I was returning to town in a day or two, I knew I could not myself take the eggs, so I called the son of the man who rented the orchard, and promised him a shilling to send me the complete clutch. A little more than a week later I received five eggs which were all that were deposited.

After this I did not again meet with the Wryneck until 1887, when on July 9th I was examining the mole-burrows, Sand-Martin's holes, &c., in a large brick-earth cutting on Mr. Drake's property at Kemsley, in Kent, on the chance of finding a late nest, when as I passed a small hole I heard a sound not unlike that produced by shaking a number of small silver coins between the palms of one's hands. Taking out a large knife I set to work to enlarge the hole, and after half-an-hour's hard work was able to insert my hand, when I felt the soft

* When one considers that the Wryneck is single-brooded, and that seven to eight eggs represent the average clutch, some idea of the strain put upon the bird by compelling it to lay at least five times that number of eggs may be obtained: on no grounds can such a proceeding be justified.

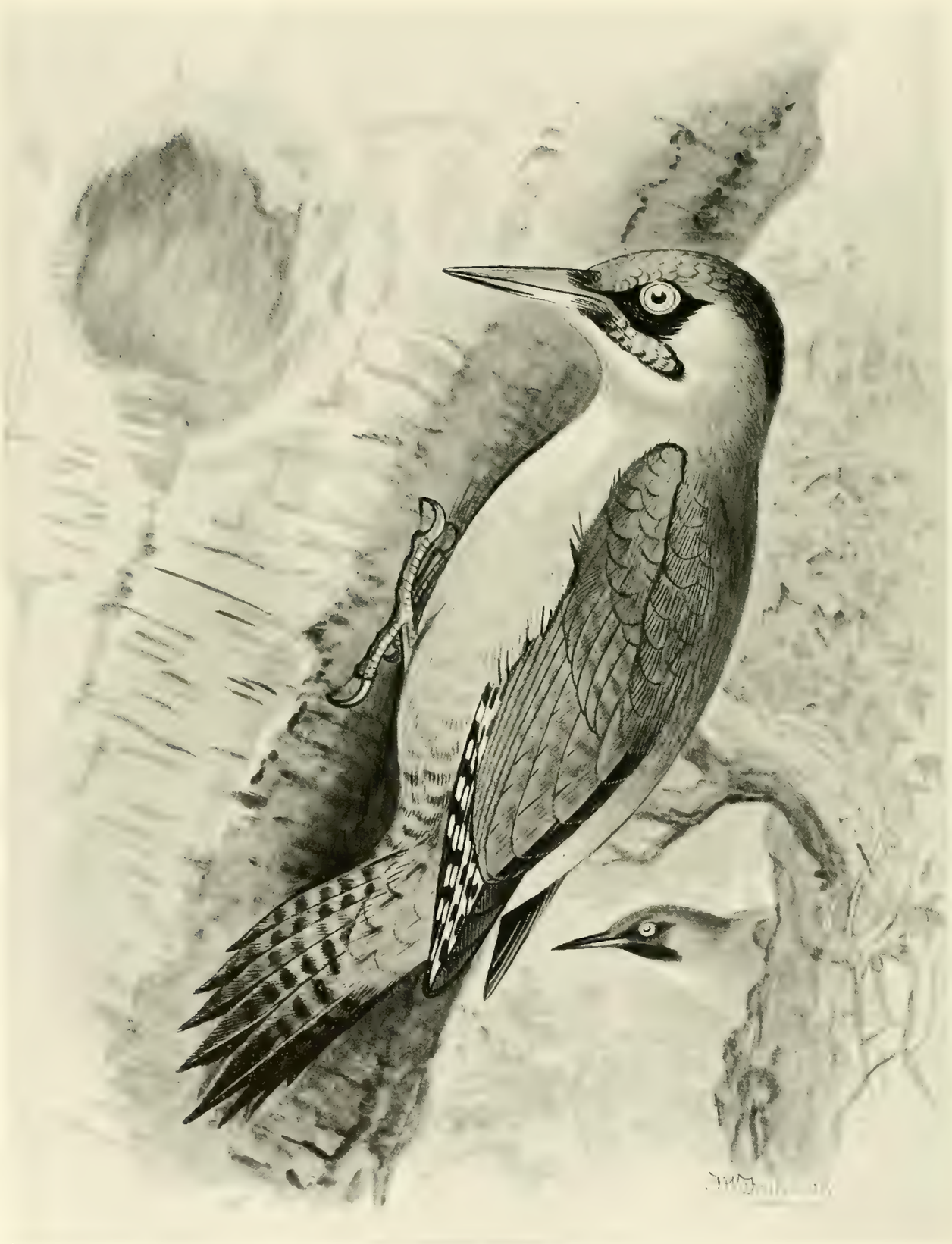
backs and heads of five young birds, evidently full fledged. On lifting one out I discovered that it was a Wryneck and promptly put it into a basket, hoping to secure the whole family, but as I put the second into my basket the first one escaped and another dashed past my hand from the nesting hole. However I secured three and got them home safely, put them temporarily into a small cage and went down to dinner. Going up to feed them shortly afterwards I discovered all three birds sitting together on the back of a chair, they having all got through the water-hole of the cage.

These birds fed greedily on Nightingale food, and when hungry they always uttered the silvery shake which had first attracted me to their nest; they were very tame and used to run over me, frequently using their tails as a partial support, they always moved upwards in little jerks. In a large cage the tails were almost always called into requisition, the feathers being partly projected through the wire netting as they hopped upwards.

Towards the end of July the first of my Wrynecks died, and a second showed signs of ill-health, but by moving it nearer to the air and constantly administering caterpillars (like pills) I managed to prolong its life until the night of August 14th, when it also died. The third bird continued to do well, was very active and had a healthy appetite; but the long chilly nights in November sent it into a decline from which it also died on December 9th.

One curious fact that I noticed with these Wrynecks was that although from the first they readily ate the young green caterpillars of the cabbage moth, they would not touch the older brown caterpillars until, by compelling them to swallow several, they had made the discovery that the colouring had nothing to do with the flavour; even then they took the green ones first.

The call-note of the Wryneck is a sharp whistle, which has been variously described as "*vite, vite, vite, vite, vite*," "*qui, qui, qui, qui, qui*, and *pay, pay, pay, pay, pay*"; but Lord Lilford says it bears a resemblance to that of the Lesser Spotted Woodpecker, and a still greater resemblance to that of the young Hobby *(Falco subbuteo)*.



GREEN WOODPECKER ♂ ♀ $\frac{3}{4}$

Family—PICIDÆ.

THE GREEN WOODPECKER.

Gecinus viridis, LINN.

IS not known to breed in Norway north of lat. 63°, or north of lat. 60° in Sweden and Russia; appears to be found throughout Western Persia and Asia Minor; generally distributed throughout Southern Europe.—*Seebohm.*

In Great Britain and Ireland it is local, though in England and Wales it is pretty generally distributed in the more wooded districts; in the north it is rarer and very few examples have been obtained either in Scotland or Ireland.

The upper parts of this bird are mostly dull sap-green, shading into chrome-yellow on the rump, the crown, nape, and a moustachial patch on the cheeks of the male satiny carmine, grey at the base of the feathers; the wings smoky brown, the primaries with the outer webs blacker and regularly barred with white; the outer webs of the secondaries green with slightly paler bars, but the inner webs with large marginal white or whitish spots; tail feathers smoky brown, blackish towards the tips and with indistinct blackish bars; lores, cheeks, ear-coverts, and feathers round the eye black, excepting the patch on the cheeks of the male already mentioned; under parts pale greyish green, lighter on the abdomen, which is spotted with dusky crescentic markings; bill slaty-black, with the under mandible much lighter excepting towards the tip; feet dark slate grey; iris bluish white. The female has less carmine on the crown and none on the cheeks. Young birds have the lower breast, abdomen, and under tail coverts barred, and nestlings are barred both above and below, have no black on the lores, ear-coverts, or round the eyes, whilst that on the cheeks is spotted with carmine in the male and pale brown in the female.

This is the largest of the British Woodpeckers: it haunts chiefly forests, woods, and heavily timbered parks, but may be met with in plantations, orchards, and large gardens. Its flight is powerful, wild, and undulating. On the earth its mode of progression is somewhat awkward; it both walks and hops: on a tree it moves upwards, usually in a spiral, by a series of jerky hops, inserting its long tongue into every crevice in search of its insect prey, whilst its stiff tail is pressed against the trunk and helps to support it. From time to time

it makes short excursions after fresh hunting grounds or in pursuit of some flying insect, but its favourite food consists of ants and their cocoons in search of which it digs into the hills formed by these insects.

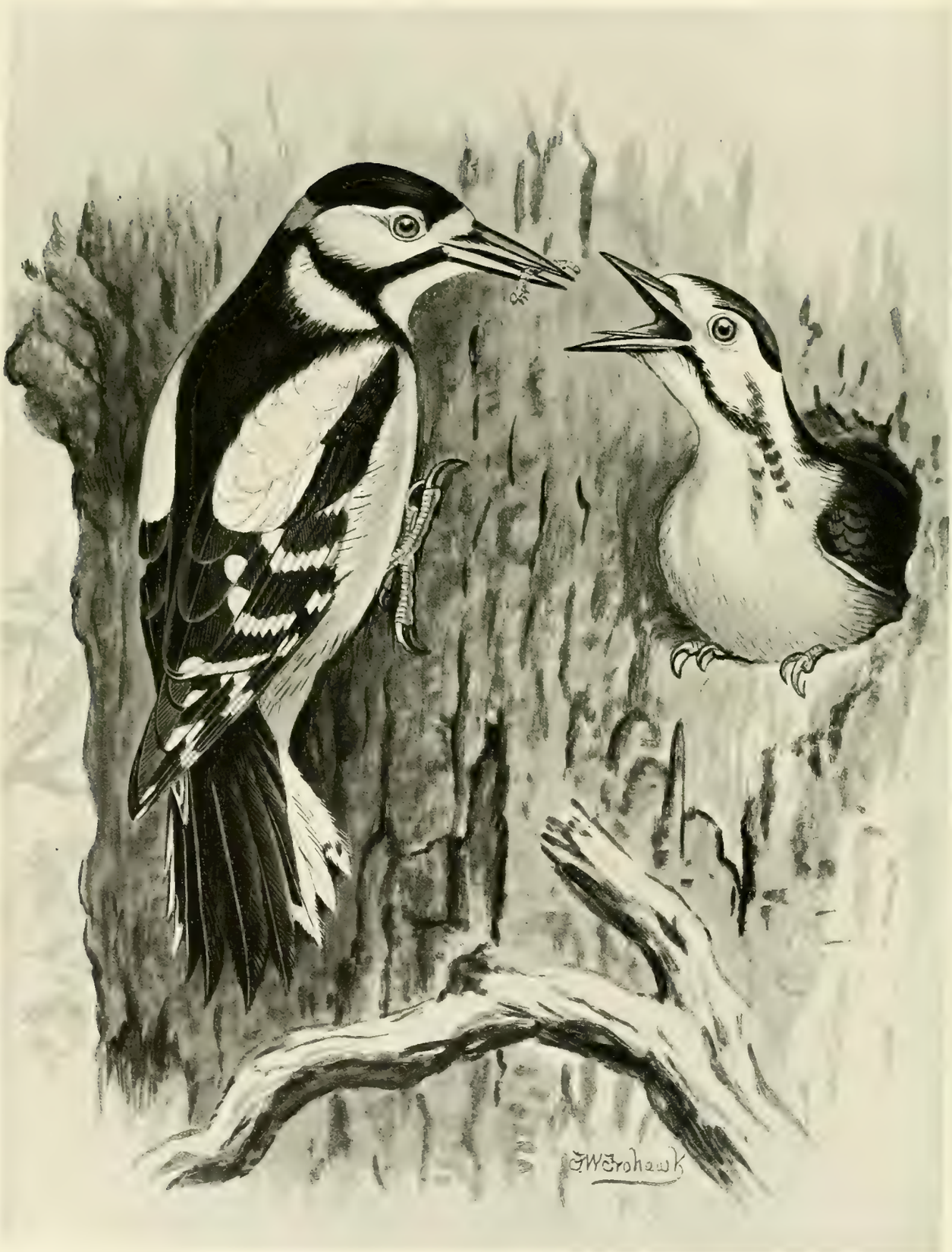
The Green Woodpecker usually excavates a hole for itself in the partly decayed trunk of some soft-wooded tree, showing no special preference for any particular species, though in Kent I have chiefly noticed it entering holes in orchard-trees; the entrance to the hole is horizontal until the rotten core is reached when it descends abruptly, and the five to six glossy white eggs are deposited upon the sprinkling of chips or rotten dust at the bottom of the cavity. I received my eggs from a keeper in the New Forest, never having personally taken them; they were forwarded to me unblown, and I found the shell very hard to drill. One of these is figured on Plate VIII., fig. 266.

The call of the bird has been variously described but so far as I can remember, it is best represented by the rustic name of "Yaffle," which has been given to this species. The rapid tapping frequently heard is now recognised as a signal to its mate and not merely (as formerly supposed) to disturb its hidden prey.

In addition to the insect-food already mentioned as forming its principal diet, the Green Woodpecker was declared by Bechstein to eat nuts, and Mr. T. E. Gunn (as related by Stevenson) discovered fragments of acorns in the stomach of one of these birds: Naumann also mentions that it eats acorns.

The end of April and beginning of May are stated to be the season of nidification; but my eggs were taken from the nest in June, 1878, and I have certainly seen the birds examining a hole in a tree about the middle of the latter month: of course a first laying of eggs may have been destroyed, or a first nest seized by Starlings, as sometimes happens. As a rule this bird excavates a fresh hole every year, but not invariably, and doubtless, if ready to lay, the female would perforce accept the first hole suitable for her purpose.

In winter this species often wanders far in search of food, and not rarely it falls into the hands of the bird-catchers, who if unable to find a purchaser of it living, doubtless often sell it, for stuffing, to publicans and others who like to have a case of bright-coloured birds to show to their friends. In August, 1895, a bird-catcher brought me a female of this species, which he assured me was a rare foreign bird, and when I told him that it was a Green Woodpecker he seemed only half convinced. He said if I did not want it he should kill and stuff it, as he did not know anyone else likely to buy it as a cage-bird. Of course I bought it and put it into a spacious cage, up the back of which I placed a large piece of loose bark, behind which the bird retired, just showing its



GREAT SPOTTED WOODPECKER ♂ ⅓

head over the top like a parson in a high pulpit. I tried it with mealworms, egg-food, soaked ant's-cocoons, chopped raw meat and hemp-seed, but it would not eat, and having spoiled my cage by splintering pieces off it and blunting its bill upon the wires, after thirty-six hours I found it dead. I much doubt the possibility of keeping Woodpeckers when captured adult, although, if hand-reared, they make tolerably satisfactory pets.

Lord Lilford says:—"The young of this species may be kept alive in confinement, but require great care and attention and a variety of diet: insect food is absolutely essential to their health during their progress towards maturity, and we have found it difficult to make them take to any other; but finely chopped or scraped raw beef with soaked bread, crushed hemp-seed, and filberts will sometimes induce them by degrees to acquire a taste for fruit of various sorts. They become exceedingly tame, and are, from their quaint manners and attitudes, interesting inmates of an aviary."

One thing I noticed with my bird, it did not sit with comfort across a perch; and, when in such a position, the tail was very much drooped; it preferred to spend its time either in clinging to the bark at the back of the cage or to the wire front.

Swaysland says:—"In confinement the bird should be fed upon scraped beef and egg, and soaked bread and hemp-seed; it should also be given ants' eggs, mealworms, gentles, beetles, or other insects, either separately or mixed with its food. If reared from the nest it will become quite tame." He does not, however, state definitely whether, if caught when full-grown, it can be kept at all, but seems to imply that it may be.

Family—PICIDÆ. *Subfamily—PICINÆ.*

GREAT SPOTTED WOODPECKER.

Dendrocopus major, LINN.

BREEDS in suitable localities throughout Europe: in Scandinavia northward to the Arctic circle, but in Russia up to Archangel and in the Ural

Mountains to lat. $63\frac{1}{2}^{\circ}$. In North Russia and Siberia a larger race with whiter under parts occurs, whilst in Japan this Woodpecker has the white on the inner secondaries developed into belts; in Mongolia and China black scapulars are assumed, in Turkestan, Persia, Asia Minor, and Palestine other forms are found, some of which show traces of a crimson band on the breast, a character best developed in North-west Africa, but which has been indicated even in British and other European examples. None of the characters appear to be perfectly constant, and in the Canary Islands, where this species is resident, our typical form has been obtained. The Great Spotted Woodpecker is an autumn visitor to Heligoland, but according to Gätke certainly not a regular one; he says:—"this bird occurs here in only very isolated instances; two or three young birds are occasionally seen during the autumn migration—but by no means every year—whilst an old example is a rare exception."

In Great Britain this species is resident but not common, but is generally distributed through the better wooded parts of England, more especially in some of the midland and southern counties; towards the north it becomes much rarer, whilst in Scotland and Ireland it is doubtful whether it breeds. In autumn large numbers arrive on the eastern coasts of England and Scotland.

The upper parts of this species are glossy black; the forehead is sordid whitish, the lores, cheeks, and ear-coverts white; nape crimson; a white patch on the side of the neck separated from the white on the cheeks and ear-coverts by a black collar; scapulars white; quills barred with white; outer half of three outermost tail-feathers also barred with white; under parts buffish white; vent and under tail-coverts crimson; bill slaty-black; feet dark brown; iris red. The female is rather smaller and has no crimson on the nape; young birds have the crown crimson and the crimson of the vent and under tail-coverts duller.

This Woodpecker haunts principally those localities where old timber abounds, such as forests, large woods, parks, orchards, large recreation grounds; also plantations, large shrubberies, and pollard willows by the water-side. Owing to its chiefly frequenting the upper branches of lofty trees, it is little seen, and consequently is supposed to be even rarer than it actually is.

Speaking of the immigration of this species in the autumn of 1861, Mr. Saxby ("Zoologist," p. 7932) says:—"Strange to say, not one female was to be found among them, and, with one single exception, all were first year's birds. The first two presented nothing unusual in their appearance, but on taking the third one into my hand, I at once remarked the worn look of the bill, tail, and claws. I immediately suspected that this was caused by the scarcity of trees having driven the bird to seek its food among stones and rocks, and upon

opening the stomach, my suspicions were confirmed by the discovery, among other insects, of several small beetles, which are found only upon the hills. I may mention that these beetles are very abundant in Shetland, although I do not remember having seen any of the kind in England; they are about the size and shape of one half of a split pea, black, edged with scarlet. I afterwards saw Spotted Woodpeckers in various parts of the hills and walls, and even in high sea cliffs, I also saw them on roofs of houses and upon dung-hills, and, although several were killed upon corn-stacks I never found any grain in the stomach. They were frequently to be met with upon the ground among heather, where at all times they were easily approached."

In its flight and its method of procuring its food in the summer time this bird much resembles the preceding species, its nidification is also similar, although it appears rarely to have eggs before the middle of May and is said more often to alter a natural hole to suit its purpose than the Green Woodpecker: nevertheless it generally prepares a hole for itself of the usual pattern—a neat circular entrance, a smooth passage and an enlarged terminal chamber for the reception of the eggs: the latter are distinctly shorter than those of *G. viridis*, hard, polished, creamy white, and from five to eight in number. A specimen from my collection is figured on Plate VIII., fig. 264. Incubation lasts about a fortnight, both sexes undertaking this duty and sitting extremely close, so that they may frequently be caught upon the eggs by hand.

The usual note of this bird is described as a sharp *chik* or *chink*, sometimes varied by another cry *tra;* it also appears to communicate with its mate by means of its bill which it rapidly raps upon the tree trunks.

The food consists chiefly of insects, their larvæ and pupæ, but apparently not ants; also spiders, earthworms, berries, small fruits, acorns, nuts, beech-mast, and fir-seeds. In confinement many other articles of diet are given: thus Stevenson says:—"One which was kept alive for some time by a person in this city, in 1857, fed upon barley-meal and insects. The latter were extracted from pieces of old bark supplied fresh every day or two, and fastened to the inside of the cage."

Lord Lilford observes:—"The young of this Woodpecker are much less difficult to keep in confinement than the species last treated of, as they take readily to a fruit and vegetable diet and thrive thereupon; they become very tame, and if set loose in a room will examine the furniture closely and methodically, and clamber over the clothes of their keeper, search his pockets for food, and come down from the cornice or top of book-shelves, pictures, &c., at once on the offer of a fly or meal-worm."

On July 7th, 1883 (*vide* "Zoologist," 1883, pp. 473-8), the Rev. H. A. Macpherson had a young male of this species given to him: it had been captured after leaving the nest and had already been in confinement for about a fortnight in a shallow box, which had so cramped its limbs that when first placed in an aviary-cage it was unable to stand. After a short time, however, "it had sufficiently recovered to demolish a saucerful of bread and milk." I shall not have space to quote Mr. Macpherson's full account, but will give what I can in his own words:—"When I came in, it ran up a strip of cork bark, moving thence to cling to the wires of the cage-dome and its flat corners; presently it assumed a posture of repose, clinging back downwards to the under surface of a broad natural bough placed horizontally across the dome, the head and tail being thus in the same place. About 7 p.m. it showed symptoms of drowsiness, and buried its head in the interscapular feathers, clinging to the top of the virgin cork, tail downwards."

"On July 8th the Woodpecker made a hearty breakfast of *pain au lait;* I threw some mealworms on the cage-bottom, but though he eyed them covetously, he would not descend to pick them up. Finding that he fenced vigorously with a stick, which I was stirring him up with, it occurred to me to split its extremity and to insert a mealworm into the cleft. He seized the first thus pushed to him, but dropped it with a little cry of surprise; I then offered him six more mealworms, after which he expressed his satisfaction of his 'inner man' by tapping vigorously on the bark, not to drive out insects, but purely to express his feelings, just as the Nuthatch beats a 'tattoo' if she has swallowed a sumptuous bluebottle. As I write (July 8th, 2 p.m.), the Woodpecker is flitting from one strip of cork to another, uttering a cry which may be rendered 'cack, cack'; from time to time he darts his long tongue into the crevices of cork."

"July 9th. It is noticeable that when the Woodpecker wishes to descend, he slides down the cork in jerks, tail downwards, like his wild brethren, in contradistinction to the Nuthatch. Strawberries pushed to him in the cleft-switch he accepts gratefully; a moment ago he nearly choked in trying to swallow a large husk, and, now that his shyness is working off, he accepts the fruit and also mealworms from my fingers."

To summarise the food given between this date and the date of the death of this bird—September 2nd, I will just mention that, in addition to bread and milk, strawberries and mealworms, Mr. Macpherson's bird devoured pulp of black cherries, red-currants, nuts, cracknel and sweet biscuits, and plum-cake (of which he rejected the lemon-peel); he seems to have invariably refused egg. Mr.



LESSER SPOTTED WOODPECKER ♂ ♀

Macpherson observes:—"I am much struck by the adroit way in which he catches a morsel of food which he has let drop: he does so either on his chest pressed suddenly to the bark to intercept it, or across the tarsi; on more than one occasion I have seen him move a leg to intercept a falling meal-worm, and this with unvarying success."

By July the 14th the Woodpecker had done considerable damage to the woodwork of his cage, and on August 4th Mr. Macpherson turned him into a small outdoor aviary; he lived on excellent terms with the small birds in the aviary, "though when kept indoors, he showed a great hatred to some young Red-backed Shrikes."

Mr. Macpherson writes that two examples of this species were brought to him in 1894, and his friend Thorpe reared one of them; but it escaped from his aviary in the following winter through the folly of a manservant.

Family—PICIDÆ. *Subfamily—PICINÆ.*

THE LESSER SPOTTED WOODPECKER.

Dendrocopus minor, LINN.

GENERALLY distributed over nearly the whole of Europe, breeding as far northward as lat. 70° in Scandinavia and North Russia, and in Eastern Russia and Western Siberia up to lat. 67°, whilst in Eastern Siberia it does not range so far north. Slightly differing races occur in various parts of Asia and in Algeria; thus the form from N. Europe and Siberia has been called *Picus pipra*, that from Asia Minor *P. danfordi*, that in Algeria *P. ledouci*, but intergrades occur in the intermediate localities. The species occurs in Kamtschatka, Japan, and N. China. In the Azores it is resident.

Although smaller, and therefore in that respect less conspicuous than the

preceding species, the Lesser Spotted Woodpecker is, in some of the southern counties of England, a much commoner bird, but north of Yorkshire it is very rare and local; whilst both in Scotland and Ireland it is extremely scarce.

This bird nearly resembles its larger relative in general colouring; but is considerably smaller; the male has the crown of the head (not the nape) crimson, the nape and a moustachial streak black; the cheeks and ear-coverts dull white, continuous with the white on the neck; the innermost secondaries, lower back, and rump are transversely barred with white; the under parts are white streaked on the flanks (and sometimes on the breast) with brown, and there is no crimson on the vent or under tail-coverts. The bill and feet are dark slate-grey, the iris reddish-brown. The female has the crown white, and the under parts more streaked than in the male. The young are very like the adult birds, but in the female the front of the crown is crimson.

The habits of this species are very similar to those of its larger relative, and its haunts are much the same. Being very shy and having a preference for elms, poplars, and other tall trees, it is frequently overlooked, more especially as it chiefly confines its attention to the highest branches, very rarely descending to the earth for food, at any rate when men are about. It is extremely pugnacious, and attacks others of its own species as well as Nuthatches, Creepers, and Tits whenever they approach its favourite hunting-grounds. It usually begins to breed towards the end of April, excavating its nesting-hole in the rotten branch of some lofty elm, poplar, birch, willow, alder, or fruit-tree, generally at a considerable height above the earth. The eggs number from five to eight, of a pure glossy white colour, and are deposited on the few chips or even the bare wood at the bottom of the excavation. The young return to the nesting-hole long after they are able to feed themselves. Nidification sometimes takes place as late as July, but whether owing to the destruction of an earlier brood or not, it would be difficult to prove. (Vide Lilford, "Birds of Northamptonshire.")

Mr. W. Ruskin Butterfield, writing from St. Leonards-on-sea, observes:—"It has been denied that the Lesser Spotted Woodpecker hollows its own nest-hole; but that the birds are able to do this I can testify from having witnessed the operation."

Furthermore he adds:—"The idea that the Green, or any British Woodpecker carries away the chips, so as not to betray the whereabouts of the nest will not be entertained by anyone who has been a birds-nester." This accords perfectly with what Lord Lilford says in his account of the Green Woodpecker, and as he notes that the preparation of the nesting-places is carried on in the same way by all the British Woodpeckers, we may infer that none of them tidy up their litter.

The egg represented on our plate (fig. 265) is from my collection.

According to Seebohm:—"In Norway, Collett says that it is often seen on wooden fences, from which the dead bark is easily removed and the tempting store of insects and larvæ exposed to view; and at such a time the bird will allow itself to be very closely approached." (Hist. British Birds, vol. ii, p. 361.)

Seebohm renders the note of this bird *káke* or *kirk*, but Howard Saunders makes it *keek* (following Naumann) and Lord Lilford *twcet*. I have never, to my knowledge, heard the call of this species, and therefore must leave my readers to select whichever version they please: but the real note appears, from what the Rev. H. A. Macpherson says, to be *kink*.

I should doubt the possibility of keeping alive a wild adult example of this species, either in cage or aviary; from what Swaysland has to say respecting it I should judge that he had never made the attempt; and Lord Lilford observes: "We have never kept any of these little Woodpeckers in confinement, and every attempt to do so that has come to our knowledge has resulted in disastrous failure, although, no doubt it is to be done. The great difficulty with all purely insectivorous birds is, of course, in the first place, the procuring a constant supply of their natural food or an acceptable substitute for it, but it appears to us that besides this difficulty, which may in some instances be conquered, it is absolutely essential to their health that they should have a considerable amount of exercise in seeking for their food, and, except in large open-air aviaries, this is not easily managed."

The Rev. H. A. Macpherson sends me the following interesting account of specimens which he had in captivity:—"It was on the 30th of June, 1894, that I received two living examples of the Lesser Spotted Woodpecker (*Dendrocopus minor*). They were male and female. Mr. Gasparin, of East Hendred, who kindly sent them to me, informed me that they must be about eight weeks old. They had been taken to him by a country fellow, who said that he had found them in a hole in a tree. Young as they were, the sexes were easily distinguished by an experienced observer. The male could be recognised by his crimson crown (the female being only imperfectly marked with that colour) as also by the purity of the white feathers on the nape; the black median band, which runs from the crown to the back, was narrower in the male than in the female bird, and tapered more finely towards its lower extremity. They were quite fledged, and showed manifest pleasure in preening their pretty pied plumage. They were full of activity, and spent a great deal of time in boring in the virgin cork which formed the lining of their cage.

The cock, in particular, looked a perfect little beau when clinging to the

bars, raising at the same time the feathers of his bright crimson crest. It was interesting to watch him in the act of hanging head downwards from a piece of bark, as if resting on the under surface of the bough of a forest tree. Each leg was firmly supported by the strong claws, and the tarsi were stretched widely apart. While thus poised, the bird struck upwards at the cork many times in succession without shifting his position. Indeed he frequently delivered a number of sharp blows upon a single spot.

When the male desired to take a bath, he first played with the water, spurting it over his back with his long bill. A few moments later he slipped into the water, ducked his head, and allowed the water to flow freely over his back and wings. Having thus saturated his feathers, he returned to the cork, and commenced to hammer merrily. The sound of my voice was always a signal for both the Woodpeckers to suspend their boring operations. They waited for me to feed them in the morning, and were vexed if they had to wait much longer than usual.

I fed them at first on an 'artificial food' supplied to me by Mr. Gasparin. After some months they tired of this mixture. I then replaced it by Hawkins' prepared food for Insectivorous birds.

The male died in the early winter of the same year, during my absence. His companion continued to thrive in solitude until the following summer, when she accidentally made her escape through an open window.

With regard to the cry of the Lesser Spotted Woodpecker, I can vouch for the fact that both sexes have the same call-note, which I wrote down as '*Kink, Kink*,' but which Naumann rendered as '*Kük*.' The male has also a sort of laughing cry, only uttered when he is excited, and even then but rarely, at least in captivity. Having listened to my tame birds at all hours, from dawn to twilight, I am able to say that both the female and male of this Woodpecker 'churr.' They have, in fact, three different beats; one is a loud '*ratatat*'; the second resembles the light tapping of the common Nuthatch *(Sitta cæsia)*. Their third sound—generally called '*churring*'—is produced by a succession of very rapid blows directed upon one particular piece of bark."

The above account is especially interesting, as showing that the natural food of the bird is not necessary in order to keep it in health; but that, as with most insectivorous birds, the regular bird-dealers' mixtures answer the purpose as a substitute.

FAMILY ALCEDINIDÆ.

THE Kingfishers of the world are represented by about 130 species, many of them of great beauty. Structurally they are perhaps as nearly allied to the Rollers and Bee-eaters as to any other European groups of birds, agreeing with them in their digestive organs, the general structure of their muscles, and in having the hinder margin of the breast-bone doubly notched on each side, a character also common to the Woodpeckers, but wanting in the Hoopoes, near to which Huxley placed them. In their flight they somewhat resemble the Bee-eaters.

The points in a Kingfisher which are most noticeable are the great size of the head with the long powerful bill; the small size of the feet with their small hind toe and usually short tail. In some genera, however, the tail is very long, one of the greatest beauties of the so-called Racquet-tailed Kingfishers being the paddle-shaped feathers which adorn this appendage. As a rule the tail consists of twelve, but sometimes of only ten feathers. The wing is of moderate length, rounded, and has ten primaries.

Most Kingfishers, as their name indicates, prey upon small fish, to obtain which they dive into the water; but some feed on reptiles, crustacea, or even insects. Their flight is direct and rapid, the wings being frequently flapped at first, then held still but open, as the bird glides smoothly onward. As a rule the flight is not long sustained. The notes of these birds are either shrill or harsh in character.

Kingfishers breed in holes, generally in banks; and frequently they excavate these for themselves, spending a considerable amount of labour and much time over the operation. The only apology for a nest consists of the bones and indigestible portions of the birds' food. The eggs are hard, highly polished, rounded and pure white, though with a rosy flush when freshly deposited, owing to the yolk being seen through the shell.

Only one species of Kingfisher is found in the British Islands: it is exceedingly beautiful, and various more or less successful attempts have been made to keep it in aviaries; it, however, never lives to a great age in captivity, and is most unsuitable as a pet: the same might doubtless be said of most members of this family.

Family—ALCEDINIDÆ.

THE KINGFISHER.

Alcedo ispida, LINN.

IN Europe our Kingfisher rarely breeds north of lat. 55°, though it has been accidentally found breeding once in southern Scandinavia; in Russia it rarely straggles as far north as St. Petersburg, and to Denmark it is only a visitor; southwards, however, it breeds throughout Europe, occurring in suitable localities down to the Mediterranean; is resident in the Canaries, and Madeira, and is said to breed in Algeria and Morocco; it also winters in Egypt. Races of our species, differing chiefly in size and length of wing, have been separated under the names of *A. pallasii* and *A. bengalensis*.

Generally distributed in suitable localities throughout the British Islands, though rare in Sutherlandshire, and not occurring in the extreme north of Scotland including the Orkneys and Shetlands, or in the Outer Hebrides. In Ireland it is said to occur most frequently in the lowland districts.

The adult male Kingfisher has the crown and nape blue-black, each feather barred with variable emerald green changing to cobalt; back, rump, and upper tail-coverts glossy cobalt-blue, greenish in certain lights; tail indigo blue, the outermost feathers greenish; wing-coverts dull deep green, spotted with greenish cobalt; primaries black, mostly bluish along the outer web; lores and ear-coverts chestnut, a patch of buffish-white tipped with chestnut at side of neck; a broad variable greenish-blue moustachial streak, with bright blue shaft-streaks to the feathers; chin and throat buffish-white, shading into the chestnut of the under parts on the fore-chest; under wing-coverts paler chestnut; quills below ashy-grey; bill black, orange at base; feet salmon red; iris dark brown. The female is rather duller and greener than the male. The young are paler and somewhat brownish; breast browner, with greyish bars; bill entirely black; feet brown.

The haunts of the Kingfisher are rivers, streams, drains, ornamental waters, lakes, reservoirs, pools, and ponds, the preference being given to such as are fringed by brushwood, trees, and brambles; though one autumn I saw two Kingfishers sailing to and fro over the open reservoirs at Battersea; probably they did not long remain there, for on the evening of the same day I saw either one of the



KINGFISHER ♂

pair, or a third specimen, skimming over the ornamental water near West Dulwich station, on the Chatham and Dover line. In North Kent I have only seen the bird once or twice in very secluded spots; but in some parts of the Thames it is not particularly rare, and many Ornithologists will probably remember the pride with which the late W. C. Hewitson used to point to a small hole bored in a tiny artificial islet at the bottom of his grounds at Walton-on-Thames, as having on several occasions been occupied by a pair of this species. The egg which Mr. Frohawk has represented (fig. 267) is one from his own collection.

Owing to its brilliant colouring the Kingfisher is very conspicuous on the wing, and can be seen for a considerable distance; unhappily its great beauty is a source of danger to the unfortunate bird, which is shot and netted in great numbers every year, many specimens being stuffed,* and set up in glass cases as room ornaments; or utilized as head adornments by the modern female barbarian; or lastly in the manufacture of artificial flies for fishermen. No wonder that the bird has become somewhat shy.

It is rather interesting to watch a Kingfisher as he sits on his chosen perch over the water intent upon his finny prey, his head sometimes turned a little sideways, the body motionless; suddenly with a loud smack he dives into the water, and in a second has emerged with a fish in his bill with which he returns to his perch. At first the fish is held across the middle, and sometimes the bird will hold it thus for a minute or more, then he shifts it so that it is held a little nearer the tail, and bangs it right and left against the perch, exactly as the South American Sulphur Tyrant does a newt, or as a Redstart treats a caterpillar; having thus killed it, the Kingfisher usually gives it a toss into the air and swallows it head foremost. Until I had seen this for myself I always supposed that this bird entered the water noiselessly, whereas the sound reminded me of nothing more distinctly than that produced by a bad diver at public baths when he comes flat on the surface—a very noisy splash indeed.†

Although very fond of small fish, these by no means constitute the sole food of the Kingfisher, for it is very fond of tadpoles and water-beetles: moreover, many of the small fry which are eaten are quite useless for human consumption, so that the bird has been treated with undeserved severity by pisciculturists, many of whom lose no opportunity of shooting it.

"The Kingfisher," says Lord Lilford, "is said to be a very early breeder, and

* A. H. Cocks ('Zoologist,' 1891, p. 154) mentions that a local bird-stuffer had had nearly a hundred sent to him to set up that year.

† The bird enters the water obliquely, and possibly may not always make so much noise: the splash may be due to the wing striking the water before quite closing; but the action is too sudden to enable one to see the exact cause of it.

instances are on record of young birds having been met with out of the nest in the month of March, but in our county, as also in Oxfordshire and Devonshire, we never met with an occupied nesting-place earlier than the beginning of May. We use the expression nesting-place advisedly, for we have never found in the holes tenanted by this species anything that could be correctly called a nest, though the eggs are often laid upon the indigestible portions of food cast up by the parent birds. The Kingfisher usually selects the steep bank of a river, brook, or pond in which to commence its boring operations, but we have now and then discovered the breeding-establishments of this species in gravel-pits at a considerable distance from water: the tunnel generally slopes gently upwards to a distance of eighteen inches or two feet, and ends in a slight enlargement, in which the eggs are placed; these are from six to eight in number, of a pure glossy white, and nearly round. On leaving their nursery, the young birds perch on any neighbouring boughs, and keep up an incessant cry for food for the first few days, but soon learn to catch their prey for themselves. Many authors state that the Kingfisher hovers for a few seconds before making his plunge at his intended victim, but we have personally found this to be a somewhat exceptional habit, the bird usually darting directly from its perch." (Birds of Northamptonshire, vol. i, pp. 255-6).

My son, whilst boating on the Thames beyond Maidenhead, has watched the hovering habit of the Kingfisher with interest; he says that, seen against the light, the appearance of the bird when hovering was very curious, as its body was almost perpendicular, but with the bill pointing downwards: I do not remember to have seen the habit myself.

The cry of the Kingfisher is a shrill scream, Seebohm likens it to the words *peep* and *pip*, but Howard Saunders renders it as *tit*, *tit*, *tit*.

Speaking of this species as a cage-bird, Lord Lilford says:—"We have frequently reared young Kingfishers from the nest, and found that in a large cage with a plentiful supply of small live fishes they may be kept in good health for a considerable time, but although they may, as we say in falconry, be 'trained off' to feed upon worms and raw meat by placing this food in their water-pan, they never thrive long upon any other than a fish diet. In common with most piscivorous birds, the digestion of the Kingfisher is a very rapid process, and its appetite consequently voracious; this of course renders it very difficult to keep their place of confinement in good order, and though they become very tame and are interesting to watch, we consider that here, at least, where we have abundant opportunities of observing this bird in a state of nature, the keeping of Kingfishers costs more trouble than it is worth, and from their savage character amongst

themselves, it is necessary to separate them as soon as they are fully grown."

A friend of mine attempted to keep some of these birds in an aviary, the centre of which consisted of a deep tank, with central fountain, in which fish were swimming about; he, however, found it difficult and expensive to obtain sufficient fish to supply their needs, consequently they hardly had enough to keep them in vigour: in addition to this the cats in the neighbourhood used to clamber over the aviary at night making the birds dash frantically about and cut their heads in their efforts to force a way through the wirework: thus one by one they got drowned, being apparently too weak after a plunge to rise from the water. I do not think he kept any of them alive for more than three weeks.

In the first volume of the Avicultural Magazine, pp. 65-67, is a very interesting article by Mr. C. P. Arthur on rearing and keeping Kingfishers; he has probably been as successful as anyone with these birds, but he does not recommend them as pets for several reasons; one being that these birds never learn to recognize the fact that they cannot fly through wire netting, so that they make straight for any object beyond it until stopped by the wire against which they flutter helplessly breaking their wings and tail feathers. In the second place he says that they are liable to fits (for which doubtless unnatural food is to blame); thirdly their cage soon becomes offensive; fourthly they are not long-lived; and lastly they have no song.

Swaysland, who has also been tolerably successful, strongly objects to the practice frequently adopted of putting the meat, egg, worms, etc., into a vessel of water for the birds to fish out, as he says that the young birds constantly tumble into the water, get soaked, and often die from cold.

FAMILY CORACIIDÆ.

THE Rollers are birds of large size and brilliant colouring which, on account of their somewhat Corvine aspect were formerly associated with the Jays (in India they are still supposed to be Jays by the unscientific). Later their affinity to the Bee-eaters was pointed out, and Seebohm actually placed them in the family *Meropidæ*. Huxley associated both groups with the Kingfishers, Hoopoes, and Cuckoos, and it has been shown that in the characters afforded by their digestive organs and muscles they approach the Nightjars.

Jerdon gives the following diagnosis of the family:—"Bill moderate or rather long, strong, broad at the base, compressed towards the tip, which is hooked, and sometimes slightly notched; the gape is large, with or without rictal bristles; tarsus short, stout; feet moderate; toes free, or slightly syndactyle; wings moderate or long, broad; tail variable, sometimes short or even, at other times with very elongated outer tail-feathers."

The wings of the Rollers have ten primaries, the first of which is long, and the character of their bills is extremely like that of the Crows, but their feet are entirely dissimilar, small, with weak and reticulated hind toe and claw.

In their flight and harsh noisy notes the Rollers much resemble Jays, whilst even their food is not dissimilar, they obtain it either on the ground or when flying; they usually breed in holes in trees, but sometimes in river-banks, rocks, or old buildings: their eggs remind one of those of Kingfishers, being very round, pure white, and glossy.

The Rollers represent a very small family of birds of extremely brilliant colouring, bluish green and ultramarine being the prevalent hues. Only one species occurs as a straggler to our shores.

These birds are somewhat pugnacious, especially at the breeding-season. As cage-birds they ought not to be difficult to keep, so far as their food is concerned; but I have never heard of any species of *Coracias* being kept in this country by private aviculturists; although, in Germany, fairly successful attempts seem to have been made to keep both Rollers and Bee-eaters; the latter one would have expected to find less suited to captivity.

Family—CORACIIDÆ.

THE ROLLER.

Coracias garrulus, LINN.

SEEBOHM thus speaks of the distribution of this bird:—"The Roller breeds in most parts of Europe south of lat. 60°, but is only of accidental occurrence in the north of France, Belgium, Holland, and the British Islands;* it has

* Gätke mentions that only three examples have been killed during his time on Heligoland.—A.G.B.



ROLLER

also occurred accidentally on the Færoes and in the extreme north of Norway. It is a summer visitor to Algeria, but is only known during winter in Egypt. To Palestine and Asia Minor, Persia, Turkestan, Afghanistan, Cashmere, and the Punjab it is a summer visitor. It breeds in South-west Siberia as far north as Omsk and as far east as the Altai Mountains. It winters in Arabia, the valley of the Upper Nile, and throughout South Africa." (Hist. British Birds, vol. ii. p. 327).

Although a mere straggler to our islands, this beautiful species has occurred more than a hundred times with us, mostly during the autumn migration, and on the southern and eastern coasts of England and Scotland, including, however, the Orkneys, Shetlands, and even St. Kilda. About half a dozen examples have been obtained in Ireland.

The Roller has the upper parts mostly glossy greenish blue, the mantle chestnut; upper wing-coverts deep blue, greater wing-coverts and base of primaries pale blue; quills black, innermost secondaries chestnut; tail mostly deep blue, paler at the tip; under parts mostly pale blue, chin white, wings below deep purplish-blue: bill blackish; feet yellowish-brown; iris dark chestnut. The female resembles the male in plumage: young birds are altogether duller and browner in colour.

Dixon (Jottings, p. 44) says of this bird:—"I met with it very abundantly in the evergreen oak woods and the cedar forests of the Djebel Aurés, but did not see a trace of it in the oases south of the Atlas." Seebohm quotes the following notes on the habits of the Roller, as observed in Algeria, from the pen of the same author:—"The Roller has many singular traits. Its flight is varied and full of strange manœuvres; its voice is most discordant. It is excessively fond of perching on the topmost branches of the trees, always preferring a dead limb if it can find one, where its showy dress can be seen for half a mile or more. It cannot be called a shy bird, although it is a wary one, and usually takes wing before you get within range of a safe shot. I have often seen this bird soar to a great height, and then drop perpendicularly down, something like the 'shooting' of the Rook, to a perch directly below it. Sometimes it turns over in the air like a Tumbler Pigeon; and in the pairing-season two birds often chase each other and gambol in the air. The Roller is often seen on the ground in search of its food, which in these regions is largely composed of beetles, locusts, grasshoppers, and any garbage it may find; for it is no more particular in its diet than a Crow or a Jay, which latter bird it resembles very closely in its habits. The flight of the Roller is very unsteady; but I cannot help thinking that the peculiar pattern of the birds' brilliant plumage gives its flight the appearance of being more

irregular than it really is. It is rather a late breeder, and in the month of May it had evidently not commenced to sit."

In India this species meets with the allied, though quite distinct, Indian Roller, with which, according to Blyth, it interbreeds, but this statement needs confirmation, although it is a well ascertained fact that the Indian and Burmese Rollers hybridize in a wild state.

Lord Lilford says:—"Our own principal acquaintance with this species has been in Spain, Turkey, and Algeria, in all of which countries it is more or less abundant in summer, and of course always a very conspicuous object, more especially from its habit of sitting on bare boughs, wooden posts, and rails and telegraph wires, whence it darts upon both flying and creeping insects, and generally returns to its perch in the same manner as our Common Spotted Fly-catcher and Red-backed Shrike. The Roller is generally considered and has been often described as a shy and wary bird, but our own experience is, that we have always been able to procure specimens without much difficulty, and might occasionally have killed many of these beautiful birds without moving from one spot had we been murderously inclined. This species has a curious habit of turning somersaults in the air, after which performance it generally darts downwards with a harsh and grating chatter; these antics are generally carried on by the male birds while the females are sitting. The flight of the Roller is light and rapid, but on the ground its actions are clumsy and grotesque. The usual nesting-places of this bird are the cavities of hollow trees, or holes and crevices in banks and cliffs, but we have known of more than one nest in ruined walls; the materials are a few twigs and some dried grass, but when the birds choose a hole in a sandy bank they seldom make much if any nest. The eggs are very much rounded, of a pure glossy white, and generally five or six in number. Besides their usual insect diet, these birds occasionally take frogs and small reptiles; we once discovered some remains of figs in the stomach of a bird of this species, but imagine that they were swallowed unintentionally with some insect food." (Birds of Northamptonshire, pp. 253-4).

The harsh chatter spoken of above is stated by Howard Saunders to be syllabled by the Germans as "Racker-racker," but by the Spaniards as "Carlanco-carlanco." He also says that the eggs are not invariably globular, "but sometimes elongated," and that "incubation lasts nearly three weeks, commencing early or late in May, according to the country." Both sexes appear to take part in incubation.

Seebohm renders the note of this bird as "a loud harsh *wrack wrack*"; he specially remarks upon its restlessness and its habit of using its wings in prefer-

ence to hopping from branch to branch, a trick which he appears to ascribe to its very short legs and weak feet, but it must be remembered that this is a habit also of the Jackdaw, which I have repeatedly noticed doing the same thing, certainly from no lack of vigour in its legs or feet.

Every observer of this bird in a wild state has called attention to the peculiarity in its flight from which it has received its name of "Roller"—a sudden turning over in the air after the manner of a Tumbler Pigeon. Many birds drop suddenly when at a great height, notably Swallows and Swifts, but very few appear to roll over in the air, yet it must be a pleasurable sensation.

When on migration the Roller appears to be gregarious. Canon Tristran having observed large flocks of them in Palestine on the 12th of April.

It is difficult to understand why this magnificently coloured bird has not become a favourite with aviculturists. Being a common breeding species in North Germany it should not be difficult to obtain. Dr. Russ does not mention the genus *Coracias* in his "Handbook," yet there is no doubt that it has been kept in Germany.

The Roller should be no more difficult to feed in confinement than a Shrike and, although Naumann states that caged birds when fed on any vegetable matter die from its effects, one ought to be able to keep them alive with raw meat, cockroaches, frogs, newts, and perhaps mice. It is indeed related respecting one of the Norfolk examples of *C. garrulus* that it "was brought into Yarmouth by some sailors, having alighted on the rigging of their vessel just off the harbour; yet though taken alive it soon died": but as the poor thing only had a minute fragment of a beetle's leg in its stomach and was in very poor condition, it would have been more surprising had it survived.

A pair of the Abyssinian Roller *(C. leucocephalus)* stated by the late Dr. Bree to have been shot near Glasgow about 1857, had probably strayed from some Zoological Gardens: for as this species has never been known to occur in any part of continental Europe, it is tolerably certain that it could not have wandered to the British Isles. Of course many other species which do occur on the Continent, may have similarly escaped from captivity.

FAMILY MEROPIDÆ.

NOT only Seebohm, but Swainson before him, united the Bee-eaters and Rollers under one family name; but considering the structural differences between the two groups, it is certainly more convenient to keep them separate.

The Bee-eaters may readily be distinguished from the Rollers by the long curved bill, by the short first primary, and by having the central (instead of the external) tail-feathers frequently elongated.

Jerdon says of this family:—"The Bee-eaters form a group of beautiful birds peculiar to the warm regions of the old world, one or two extending in summer into the temperate parts. Green is the predominant colour of their plumage, varied with blue, yellow, and chestnut. They feed on insects, often on wasps and bees, hence their common name in English and other European languages, and they always capture them in the air.* They usually crush their insect prey when they seize it, killing it at once, and thus do not get stung. Their flight is easy and graceful, and at times very rapid. They breed in holes, in banks of rivers chiefly. In India they are popularly known as Flycatchers.

They have a doubly emarginated sternum, a longish heart-shaped tongue, a membranous stomach, short intestines, and cœca of the same dimensions as in the *Cuculinæ*, etc. Their skin is remarkably thick."

The wings of the Bee-eaters are long and pointed, with ten primaries as in the Rollers, but the bastard primary is very small. There are upwards of thirty species of this family, but only one well authenticated species is known to visit the British Islands, and only as a straggler to our shores, nevertheless Lord Lilford has brought forward evidence, which (although far from conclusive) seems to point to the bare possibility of the bird having nested with us on one occasion.

The nest in its character is not altogether unlike that of the Kingfisher, being bored by the bird itself, and consisting of a long tunnel ending in an enlarged chamber in which the pure white eggs are laid upon the "castings" or ejected indigestible portions of the food of the parent-birds.

* This is not strictly correct, as they have been seen to pick up insects.—A.G.B.



BEE-EATER ♂ ½

Family—MEROPIDÆ.

THE BEE-EATER.

Merops apiaster, LINN.

EXTREMELY beautiful as this bird is, it is unfortunately neither a common nor resident species with us. On the Continent its distribution does not frequently extend so far to the north as Northern Germany, whilst in Russia it is not known to breed above lat. 52½°, it has nevertheless straggled northwards even to within the Arctic Circle: to the south of Europe, however, it is a regular summer visitor, being extremely abundant in Spain, the Mediterranean basin, and North Africa; it also visits Madeira and the Canaries. To Egypt it appears to be chiefly a visitor on migration, although a few pairs remain there to breed: it winters in South Africa. Its Asiatic range extends in summer through Palestine, Asia Minor, Persia, and Cashmere, and when on migration it visits Afghanistan, North-western India, and Sind.

This species has generally occurred in Great Britain and Ireland during the spring migration, and usually in small flocks; its visits have been most frequent to the southern counties both of England and Ireland, but three or four examples have been reported as having been taken in Scotland.

The adult male has the forehead close to the bill white, shading at the back into a belt of viridian green; crown, nape, and front of mantle chestnut; lower mantle paler, shading into tawny yellow on the back and rump; scapulars whitish. Wings variable blue-green; quills tipped with dark brown; secondaries broadly belted with chestnut; tail bluish-green, the two central feathers tipped with black: lores and ear-coverts black; cheeks greenish-blue; chin and throat yellow, bounded by a black collar; under parts from collar glistening greenish-blue; bill black: feet reddish-brown; iris red. The female nearly resembles the male, but is slightly duller and has the two central tail-feathers shorter. The young are much duller, chiefly greenish-brown above, the tawny yellow of the back and rump are replaced by pale green, and the chestnut is wanting; on the under parts the black collar across the back of the throat is wanting: the tail-feathers are also barely longer than the others.

The Bee-eater is essentially a gregarious bird; not only when on migration,

at which time it travels in large flocks, but also during the breeding-season when the steep banks of rivers or streams are filled with its burrows, much after the manner of those formed by Sand-Martins.

In their love of open country, manner of flight, and their fondness for perching on telegraph wires, Bee-eaters much resemble Swifts and Swallows; like these birds they skim low over the herbage or sail high in air on buoyant wing, ever and anon sweeping round in circles or stopping with hovering action to seize some dancing insect which would otherwise evade their grasp. Nevertheless in some respects they differ widely from these birds, with whom at times they consort, for they not infrequently choose a favourite perch from which they make short sallies after the fashion of a Flycatcher, seizing some passing insect and returning again to the spot whence they started. Then also they do not disdain to snatch an insect from a leaf, or even to hunt for beetles upon the earth.

Strictly insectivorous, the Bee-eaters, favourite food appears to consist of bees and wasps; and so much havoc does it commit amongst the bee-hives in Spain, that, as Lord Lilford informs us, "lads are often employed to shoot at and scare" these birds away. Howard Saunders also states that "sacks full of birds are taken * * by spreading a net over the face of an occupied bank, and pouring water into a parallel trench cut at some distance back; for the Bee-eater is hated by the peasants, owing to the ravages inflicted upon their numerous hives, although it also destroys large numbers of wasps, locusts, grasshoppers, beetles, and other insects." (Manual British Birds, p. 274).

The time of nidification varies between April and June, according to the country in which it is breeding; the bird forms its own burrow and has been said to make a fresh one each year, but this is exceedingly improbable; it is far more likely that, like the Sand-Martin, it lengthens its tunnel annually, until it has gone as far as it is accustomed to excavate, and then commences a fresh one.

Although the banks of rivers are favourite nesting sites, almost any suitable bank is likely to be occupied; and, where these are not available, the Bee-eater burrows straight down for a short distance in open sandy soil, then turning abruptly forms a horizontal tunnel for two or three feet and finishes, as usual, in an enlarged cavity for the reception of the eggs. These are generally from four to six in number; rarely as many as eight or nine; they are pure white, glossy, and rounded after the manner of eggs of Kingfishers. They are deposited upon castings and insect wings, no nest being formed. It is probable that only one brood is reared in the year.

It would, at first sight, seem next to impossible that a bird so purely insectivorous as the Bee-eater could be kept for any length of time in confinement; but

when we know that, with care, it is possible to get Honey-suckers to live upon food-mixtures, and Lories upon seeds, the difficulty appears no longer insuperable. Anyhow we know that Bee-eaters are kept in captivity; for in Dr. Russ' "Handbuch für Vogelliebhaber," p. 340, we read:—"The Common Bee-eater *(Merops apiaster)* abundantly sold. Green Indian Bee-eater *(M. viridis)* has once reached us. In the collection of E. Linden a specimen continued alive for a year. A pleasant loud whistle, often expanded into several harmonies, the song like that of the Laughing-Thrush, it greeted Mr. L. therewith when he brought it food, a singularly well-behaved and loveable cage-bird. Occasional food: bees, wasps, drones, etc., but fed for the greater part of the year upon mixed food, and, a treat, mealworms and currants."

Although Dr. Russ does not say so, there can be no doubt that the common Bee-eater would thrive upon similar food; but its cry which is said to be "a sharp *quilp*" would, I fear, never develop into a pleasing song.

Family—MEROPIDÆ.

THE BLUE-TAILED BEE-EATER.

Merops philippinus, LINN.

AN example of this widely distributed oriental species is said to have been shot in Durham, in August, 1862. Doubtless it was somebody's pet, but having accidentally escaped from captivity met with that inevitable fate which is constantly adding foreign species to the list of so-called "British Birds." I believe that this species has every bit as much right to be called British as the Pine Grosbeak and Scarlet Rose-finch, but in most recent books on British Birds it is merely mentioned in a footnote or at the end of a chapter: *of course* it is not British, nor are the others in my opinion.

FAMILY UPUPIDÆ.

ACCORDING to Jerdon, the Hoopoes are allied in structure to the Hornbills (Birds of India, vol. i, p. 358) in which opinion he was supported by Huxley, Forbes, Sclater, and Gadow: both Huxley and Sclater were also of opinion that they were related to the Bee-eaters. They moreover possess characters in common with the Kingfishers and Rollers.

The family is an extremely small one, consisting of only half a dozen species *(Seebohm)* of which only one species occurs in Europe. The following family characters are given by Jerdon:—"Bill long and slender, slightly curved throughout; the tips acute and entire; nostrils small; wings rounded; tail moderate or long, even or rounded; tarsi short and stout; outer toe syndactyle at the base; toes and claws strong." Jerdon, however, appears to have regarded the family *Irrisoridæ* of Sclater which, as the name implies, contains birds with more or less metallic plumage (and also differing in being crestless) as a mere Subfamily of the *Upupidæ (Irrisorinæ,)* and the more typical Hoopoes he placed in a Subfamily *Upupinæ* which he characterized as follows:—"Tail with ten feathers; wings long; bill keeled at the base; head with a large erectile crest." So far as I can judge Seebohm seems to have been half inclined to follow him in this; pointing out that both Subfamilies agree in the "slender curved bill, rounded wings composed of ten primaries, tail of ten feathers, and the hind toe and claw well developed, as in the Passeridæ." The Hoopoes, however, differ from all the Passeres excepting the Larks in having the tarsus scaled at the back as well as in front.

The Hoopoes are ground-feeders, they haunt open fields, pastures, and roads, where they pick up the insects or worms on which they subsist: they nest in holes in trees or walls, lining their very flimsy pretence at a structure with the foulest and most offensive matter, and laying greenish-blue or pale bluish eggs.

As cage-birds the Hoopoes are not difficult to tame, and it is said that they have even been induced to breed in confinement; they, however, do not show off their full beauty, but give much trouble, in a cage, one of their greatest charms being their butterfly-like flight; a small aviary is most suitable for such birds, where constant cleansing is unnecessary.



HOOPOE ♂ ♀ ⅔

Family—UPUPIDÆ.

THE HOOPOE.

Upupa epops, LINN.

IN Europe and Asia the Hoopoe occurs in summer as far to the north as about 56° lat., but stragglers have been met with even to within the Arctic Circle: to the south it breeds in suitable places throughout Europe and the greater part of Asia; it winters in Madagascar, Abyssinia, Nubia, North Africa, and Senegal; it is resident in the Canaries, and occurs in Madeira and the Azores. To Great Britain and Ireland the Hoopoe is a tolerably regular summer visitor, but unhappily its striking appearance and its love for open country render it a mark for every gun, so that but few of those specimens which reach our shores ever leave them again, much less have a chance of breeding here. Nevertheless the Hoopoe has now and again been known to nest in many of the southern counties of England, and has been met with in nearly every county, as well as in the Orkneys and Shetlands.

The male bird has a conspicuous crest of large cinnamon feathers tipped with black on the crown, some of the feathers also with a subterminal white band;* upper parts cinnamon, paler, and barred with black and white on the lower back; rump white; wings black, varied with white bands, excepting the inner secondaries which are striped with buff; tail black, crossed by an arched white belt, the outer extremities of which almost reach to the tips of the outermost feathers; the fore-parts below are of a rather more rosy cinnamon than on the upper parts; the abdomen and under tail-coverts white: bill black, flesh-coloured at base of lower mandible; feet deep brown; iris pale brown. The female is slightly smaller and the crest, wing and bill are decidedly shorter. The young is duller and has a shorter bill.

The opening words of Stevenson's chapter on the Hoopoe cannot be too widely circulated, and therefore I make no apology for repeating them here:—"Of all our rarer migratory visitants there is none whose appearance is more regularly noted than the Hoopoe, its singular plumage striking the most indifferent observer

* This crest can be erected or depressed at pleasure: when at rest it is usually depressed, but when the bird alights on the earth or when it is excited the feathers are raised.

and, unfortunately, in almost every instance insuring its destruction. Although the annual notices of its persecution, in our local and natural history journals, belie the stereotyped heading of "*rara avis*," no specimen is safe for an instant on our inhospitable shores, and many an opportunity of examining the peculiar habits, in a wild state, of this most interesting bird are lost to the naturalist through the greed of collectors." (Birds of Norfolk, vol. i, p. 298).

Although, as already stated, the Hoopoe seeks its food in the open country, haunting plains, fields, meadows, or roads, it prefers the neighbourhood of trees, and more particularly affects open groves in the vicinity of pasture-lands; nor, unfortunately, does it at all object to the neighbourhood of human dwellings, being more shy of its own kind than of man. Most of the life of this bird is passed upon the earth, where it struts and nods, almost in the manner of a minature Crowned Pigeon, feeding entirely upon insects, their larvæ and pupæ, spiders, probably centipedes, and worms.

The flight of the Hoopoe is buoyant and undulating; but, excepting during migration, is not long sustained; consisting chiefly of short excursions along a roadway, or from one tree to another. Its call to its mate, from which it takes its name, has been variously rendered as *hoop, hoop, hoop*, a soft *bu-bu, pou, pou, hoh-hoh-hoh;* but most Ornithologists seem to be satisfied with the first of these versions; the scolding note is a harsh rattling *krr*, sometimes described as a *churr*, and the alarm note of the young, as with many species which nest in holes is a loud hiss.

This species commences breeding operations about the middle of May, usually selecting a hole in a decayed ash- or willow-tree as a site for the nest, but not unfrequently selecting a crevice in a rock, wall, or cave; Lord Lilford mentions having once found it on the ground beneath a large stone; whilst Jerdon quotes Pallas as having found the nest in the chest of a decaying corpse loosely covered with stones; and Stevenson mentions that, according to the late Consul Swinhoe, the Hoopoe is called the "Coffin-bird" in China from its habit of making its nest in holes in exposed coffins. The nest is usually slight, but sometimes consists of a good many twigs, straws, bents, rootlets, and feathers, and rarely no materials of the usual kind; but invariably a plastering of the most foul-smelling ordure, upon which the eggs are deposited: nor does the bird ever remove its own droppings or those of its young, so that the stench of a Hoopoe's nest becomes simply intolerable, and the five or six eggs, which at first are clear greenish blue, become soiled and yellowish.* One brood only is reared in a season. The egg (pl. viii, fig. 268) is from Mr. A. B. Farn's collection.

* I noted that the Wryneck's nesting-hole from which I obtained my young birds was in a similar filthy condition, so that for hours the evil odour hung about my hands.—A.G.B.

Like many ground-frequenting birds, the Hoopoe is fond of dusting its feathers in sandy roads, probably to get rid of the small fleas which persecute most of those whose nests are formed in holes.

As a cage-bird the Hoopoe is tolerably well-known, and usually pleases its owner by its tameness: the best food for it consists largely of soaked ants' cocoons, supplemented by mealworms, spiders, insects of all kinds and earthworms. Unfortunately this birds' habit of tapping on the earth tends to split its bill, thus rendering it unable to pick up its food and so producing death through starvation; an aviary with beds of earth and a thick layer of sand over the remainder of the floor would, therefore, be most suitable for this species.

FAMILY CUCULIDÆ.

RESPECTING the natural position of the Cuckoos there has been considerable diversity of opinion—Wallace considered that they approached the Toucans; Jerdon that they were related on the one hand to the Toucans, on the other to the Woodpeckers*; Forbes believed them to be allied to the Pheasants, Bustards, etc.; Seebohm that they were nearest to the *Musophagidæ*, or Plantain-eaters; whilst Huxley, Sclater, and Gadow placed them with the other Picarian families.

The Cuckoos are a very large and remarkable group of birds, consisting of not far short of two hundred species, many of them of extraordinary beauty. Most of them are insectivorous, though a few of them are frugivorous, but with the latter we need not concern ourselves. In like manner some Cuckoos are parasitic whilst others build their own nests and rear successive generations of young, sometimes even overlapping, so that a freshly laid egg has been found in the same nest with a full-fledged young one.

Although the bill is only of moderate size, the gape is very wide: the toes are unequal, the outer toe being reversible; the tail consists of from ten to twelve feathers, and is both broad and long.

The Cuculinæ to which our common Cuckoo belongs, represent a Subfamily of usually more or less Hawk-like birds with parasitic habits, placing their eggs

* Jerdon, however, states that "in their general anatomy they resemble the *Caprimulgidæ*."—A.G.B.

in the nests of other birds after the fashion of the American Cow-birds. Jerdon gives the following structural characters for this group:—"Bill slender, somewhat broad at the base, convex above, gently curved at the culmen; nostrils round, membranous; wings pointed; tail rounded, nearly square, subfurcate in one group; tibial feathers lengthened; tarsus very short, partly feathered; feet small; outer toe capable of being directed either backwards or sideways."

Family—CUCULIDÆ.

THE CUCKOO.

Cuculus canorus, LINN.

DISTRIBUTED over nearly the whole of Europe, though not common in summer in the extreme south; it also occurs over nearly the whole of Asia, although only a winter visitor to the greater part of India, Ceylon, and Burma; in winter, moreover, it visits the Philippines and Celebes. In Northern Africa it is common on migration, and a few remain to breed, but in winter it occurs as far south as Natal: it is a straggler to the Canaries and Madeira.

In the British Islands the Cuckoo is common and generally distributed.

The adult Cuckoo has the upper parts smoky ash-grey; wings more dusky, inner webs of the flights barred with white; tail dark slate-grey, with white tip and small indistinct white spots, mostly on the outer feathers; throat and breast ash-grey; remainder of under parts white, barred with dull brown: bill blackish, with yellow edges, the base paler; feet, and iris yellow. The sexes are generally alike in plumage, but the female is said sometimes to show a slight rufous tinge on the breast. The young have the upper parts grey, barred with dull chestnut, the feathers edged with white: iris at first grey, subsequently brown.

The Cuckoo usually arrives in this country some time in April, and starts on the return migration in August or September, the young birds being the last to



Cuckoo ♀ ½

leave us. It is not limited to any particular style of country, being met with equally in moorland or forest, arable land or fruit-garden. On the wing it is powerful, its flight being usually direct, but occasionally with a wild swerving character which reminds one of a frightened Pigeon. Where trees are numerous I believe that this bird prefers to alight on them, and never descends to the ground unless from necessity; its somewhat short legs and the character of its toes make its progression upon the earth both awkward and ludicrous, sometimes resembling the clumsy waddle of a Parrot, but frequently consisting of a series of jumps. The note of the Cuckoo is often *whoo-coo*, the *c* sound even in the latter half of its note being very imperfectly defined; but some males also sound the initial *c—coock-oo:* I have heard both notes equally commonly, and I believe that they are peculiar to individual birds. Frequently in the spring, and especially when it has been chasing a female, I have heard the cry *whoo-coockoo*. The female has a different note again, a kind of rattling guttural *coo*, which has been somewhat aptly likened to the sound of bubbling water, whilst the young bird when calling for food has a harsh aggressive chirp.

The favourite food of the Cuckoo consists of hairy caterpillars, those of the Buff-tip moth, which are eaten by few other birds, being probably kept in check principally by this species; but many insects and their larvæ are eaten by it, and doubtless spiders.

As regards the nidification of the Cuckoo, its parasitic habit of placing its eggs in the nests of other birds has always been a subject of the greatest interest and has given rise to endless discussions amongst Naturalists. Many years ago the fact that its eggs were frequently found in nests which it was impossible for the bird to enter, or which were incapable of supporting its weight, aroused considerable wonder, and long before the fact was finally proved by actual observation it was conjectured that, like some of its foreign allies, the Cuckoo deposited its eggs on the ground and carried them in its mouth to the selected nest.

As early as 1851 Mr. J. A. Harper recorded in the "Zoologist" (p. 3145)* the fact of his following a Cuckoo to a meadow, where he observed it wandering about with some substance in its mouth; after shooting it he discovered this "substance" to be its egg, and upon dissecting the bird he found that the cloaca contained another egg almost of the same size, but without shell. Mr. Bidwell eventually established the fact that this is the method adopted by our Cuckoo, thus offering a complete explanation of the popular idea that this bird sucks eggs, which owed its origin simply to the fact that, from time to time, the parent bird had been shot in the act of carrying its egg to a nest.

* He had, however, been forestalled by Macgillivray in the third volume of his British Birds.—A.G.B.

Mr. Bidwell's study of the habits of this bird has led him to the conclusion that it lays five eggs in a season at intervals of seven or eight days. It is not at all improbable that this may sometimes be the case, but Mr. Harper's experience quoted above seems to show that the habit is not invariable; moreover, as recorded in my "Handbook" (p. 103) a friend of mine took five eggs in one evening, all so much alike that, presumably, they represented the clutch of one bird, in a swampy grove at the village of Tong, near Sittingbourne, and all from nests of the Sedge Warbler: none of these eggs were much incubated, indeed they were all blown with ease, so that there could have been no such interval between the dates at which they were deposited.

It is extremely probable that five represents the normal clutch of the Cuckoo, and Mr. Rowley's studies led him to the conclusion that the time of nidification extended from the beginning of May to the middle of July, but in Kent I have only found the eggs from the middle of May to the end of June.

As a rule the eggs of this bird are coloured and marked much like eggs of the Pied Wagtail, the Greater Whitethroat, pale varieties of the Sky-Lark, etc., but sometimes they greatly resemble the eggs with which they are deposited, even when the latter are utterly dissimilar from the normal type: thus I took a clutch of Robin's eggs containing that of a Cuckoo remarkably resembling those of the foster-parent, whilst Seebohm, William Borrer, of Cowfold, Sussex, and others have taken pure blue eggs deposited with those of the Hedge-Sparrow, Redstart, etc.* In almost all eggs of the Cuckoo there are tiny rounded slate-coloured spots towards the larger end, although in blue eggs these spots are frequently almost obsolete.

Of the eggs figured on pl. viii, figs. 269, 271, 272, 275, 276, 278, 280, 283, 284, 285, 286, and 288 are from Mr. A. B. Farn's collection; 270, 274, 277, 279, 287, and 289 are from my own series, and 273, 281, 282 from that of Mr. Frohawk.

In the fine series which we have figured, it will be seen that the egg varies remarkably even when deposited in nests of the same species, and generally, when placed in a Hedge-Sparrow's nest, they are so little like those laid by that bird, as to make one wonder that they are not ejected.

It has been suggested, as an explanation of the fact that the eggs of the Cuckoo sometimes resemble those of its foster-parents, that the parents for generations past had been reared by the same species, and that the similar feeding and treatment had in some inexplicable manner affected the deposition of pigment. If this be a fact it is no marvel if these assimilations are rare, for it would seem to necessitate a condition of things which is well nigh impossible, viz:—that both

* From one of these Seebohm extracted a young Cuckoo, recognizable at once by the character of its feet.

parents for many generations must have been reared by the same species, unless indeed it be proved that the male bird in no way influences the colouring of the eggs laid by its progeny.

In his "Birds of Europe" Mr. H. Dresser, with the assistance of Mr. E. Bidwell, has given a list of 92 species in whose nest the egg of our Cuckoo has been obtained, which includes the following British birds:—Magpie, Jay, Great Grey Shrike, Lesser Grey Shrike, Red-backed Shrike, Spotted Flycatcher, Song-Thrush, Blackbird, Ring Ouzel,* Wheatear, Stonechat, Whinchat, Redstart, Black Redstart, Nightingale, Bluethroat, Robin, Hedge-Sparrow, Reed Warbler, Sedge Warbler, Marsh Warbler, Aquatic Warbler, Icterine Warbler, Grasshopper Warbler, Dartford Warbler, Whitethroat, Lesser Whitethroat, Chiff-chaff, Blackcap, Barred Warbler, Wood Warbler, Willow Warbler, Gold-crest, Fire-crest, Wren, Creeper, Great Tit, Pied Wagtail, White Wagtail, Grey Wagtail, Blue-headed Wagtail, Yellow Wagtail, Tree Pipit, Meadow Pipit, Tawny Pipit, Rock Pipit, Richard's Pipit, Sky-Lark, Wood-Lark, Crested Lark, Short-toed Lark, Reed Bunting, Corn Bunting, Yellow Bunting, Cirl Bunting, Ortolan Bunting, Chaffinch, Brambling, House-Sparrow, Tree-Sparrow, Greenfinch, Hawfinch, Serin, Mealy Redpoll, Linnet, Swallow, Wood-Pigeon, Stock-Dove, Little Grebe. That many of these birds would never rear the young bird is certain, and that some would not try is equally certain; but when a Cuckoo is hard up for a home in which to deposit an egg, I have known her to place it in an unfinished Linnet's nest, which was promptly deserted by the owners, for I left the egg *in situ* for three days to see what they would do.

When a Cuckoo lays its egg in the nest of a smaller bird, the offspring of the foster-parents are doomed; either the eggs are in part or entirely ejected by the parent Cuckoo, or possibly in some cases by their own parents; if hatched they are ejected (as first recorded by Dr. Jenner in 1788, subsequently supported by the evidence of other observers) by the newly hatched Cuckoo; or, if too large and strong for even this sturdy little ruffian, are generally crushed to death against the sides of the nest by the rapid growth of that voracious bird; as I observed in the case of a Cuckoo reared in the nest of a Song-Thrush ("Zoologist," 1877, p. 300). When two Cuckoo's eggs are deposited in the same nest, the stronger, sooner or later, ejects the weaker bird.

Various theories have been formed to account for the parasitical habit of the Cuckoo, that favoured by Seebohm being that the female being the prepotent sex

* Mr. W. Ruskin Butterfield informs me that some years ago he and his brother found the eggs in the nest of this species: he is of opinion that the Titlark is the favourite foster-parent of the Cuckoo in this district; this may be the case in Sussex, it is certainly not the case in Kent. Mr. Butterfield says he has twice obtained it from nests of the Robin containing *white* Robin's eggs; the Cuckoo's eggs being normal.

produces an excess of males in the offspring; that sexual desire in the males is subordinated to greed of food, and consequently they neglect the females, which are obliged to seek out several males before the clutch of eggs can be deposited; and he instances the American Cow-birds, as stated by American Ornithologists to be similarly of insatiable appetite. Consequently it is concluded that the females having to lay their eggs at long intervals are unable to attend to them and hand over the care of them to other birds. Charles Dixon has opposed this view at great length in his "Jottings about Birds," and shows it to be utterly untenable inasmuch as the male Cuckoo has a love-song and is no more voracious than the female; he also denies the excess of males over females, but here I am inclined to disagree with him, for on several occasions I have seen two and even three males pursuing one female. He suggests that the fact of the young being extremely voracious may have been the original cause, which seems far more probable. With regard to the voracity of Cow-birds, I have kept a pair for about four years, and have been astonished at the very small amount of food which they consume in a week; indeed it is rare for me to see them feeding; I should say that all *Icteridæ* were small eaters.

With regard to the Cuckoo in captivity, I would recommend no lover of birds to have anything to do with it. A young bird was given to me two or three years ago, and, so far as feeding went, there was no difficulty; it would eat anything that was offered, but for a considerable time refused to feed itself, merely sitting on its perch or fluttering against the bars of its cage and screaming for food: at length by refusing to feed it, and simply stirring the food in its pan with its feeding-stick, at which it snapped greedily, I taught it to attend to its own wants, and then each day it emptied a large pan holding more than would be enough for an adult Blackbird. It flopped and fluttered about, covering itself with filth and breaking its feathers until it was simply hideous; nor, even when gorging itself, did it ever cease from its discontented chirp. In an aviary even, the Cuckoo is not interesting, but sits on a perch and calls the other birds to feed it.

Family—CUCULIDÆ.

THE GREAT SPOTTED CUCKOO.

Coccystes glandarius, LINN.

ABOUT three examples of this species have been obtained at long intervals ranging over upwards of fifty years; the first specimen being an immature example in poor condition captured on the island of Omey, off the coast of Connemara, and the last being, I believe, obtained as lately as 1896. It is an inhabitant of Southern Europe, Western Asia, and Northern Africa, but visits South Africa in the winter. It seems probable that these specimens may have escaped from captivity; but at best the species can only be regarded as a chance wanderer to our shores.

Family—CUCULIDÆ.

THE AMERICAN YELLOW-BILLED CUCKOO.

Coccyzus americanus, LINN.

SIX examples of this bird have been shot or picked up dead in the British Isles, the first in co. Cork in 1825, and the last on Lundy Island in October 1874. I quite agree with Howard Saunders in being unable to "believe that they have crossed the Atlantic without human assistance."

Family—CUCULIDÆ.

THE AMERICAN BLACK-BILLED CUCKOO.

Coccyzus erythropthalmus, LINN.

A SINGLE example was shot near Belfast in 1871. The same observation is applicable to this species as to the preceding one.*

* On several occasions during the progress of the present work, I have been called to account for not illustrating and describing these so-called "Rare British Birds," the strongest argument brought forward being that should anyone perchance shoot one of them, he would be unable to name it by reference to our plates. This appears to me to be a very feeble excuse for the expenditure of much money and labour. It is possible that many (if not all) which I have passed over may have escaped from captivity; and, in any case, if a man shot a bird and tried to identify it by comparison with our plates, he would not be daunted by his failure to do so, but would forward it to the Natural History Museum or to some well-known Ornithologist.—A.G.B.

ORDER STRIGES.

I HAVE no special qualifications to treat of the STRIGES and ACCIPITRES that have been allotted to me as my share in the present work, beyond an attachment all my life to the interesting Family of the Owls which has led me as far as I could to vindicate their extreme utility to agriculturists, and to plead for their protection. An apprenticeship, in a limited extent, to the science of Falconry, in my early days, under William Brodrick, taught me to appreciate the power of wing and marvellous courage of the Falcons. And, having been privileged to correspond for a number of years with the late Lord Lilford, a Past Master in everything concerning his favourite Owls and Falcons, I have gladly quoted from what he has published of his experiences with the birds I have had to describe.

1897. MURRAY A. MATHEW.

Order—STRIGES. *Family—STRIGIDÆ.*

THE OWLS.

THE Owls form a distinct and well-known family of raptorial birds, of somewhat grotesque appearance, which discharge very useful functions in the economy of Nature, as they keep under the mischievous smaller rodents, and prevent their multiplying to an extent that would portend destruction to crops. The typical Owls, such as our English Barn-Owl and Tawny Owl, are nocturnal, roosting throughout the day in places where they can avoid the light, and issuing forth at dusk to commence hunting for their prey which is chiefly active during the night. The Owls are beautifully equipped for the work they have to perform, having large and sensitive eyes, large ears, enabling them to detect the least rustle of a mouse in the grass; long and rounded wings, of soft and broad flight feathers, so that they steal noiselessly upon the unsuspecting prey, and sharp and powerful talons for the fatal pounce. Their heads are large and rounded; each side of the face is formed of a mask or disk of feathers radiating from the prominent eye, and concentrating upon it every ray of light; this disk, in the typical Owls, is complete and almost circular, and is bordered by a ruff of short closely set feathers; the whole plumage is soft and downy; the legs and toes are clothed with feathers; the tail is generally short; the beak is short, stout, and decurved from the base. Owing to their long and pointed claws Owls are bad walkers, and can only progress upon the ground by awkward leaps; when they alight upon a flat surface three of their four toes are directed to the front, and the body is bowed forwards to prevent the tail from touching the ground; when they alight upon a bough or any elevated perch two of the claws, one of which, the outer, is reversible, are turned backwards to aid in the grasp, and the position of the bird is then upright. The cry of Owls consists either of hoots, shrieks, or other notes more or less melancholy and discordant; they also hiss and snore, and make a sharp sound by snapping their beaks. They make little if any nest, and choose holes in trees or walls, or crannies in cliffs and ruined buildings, or nests of other birds, such as Crows and Magpies, or squirrels' dreys; or else lay their eggs in rabbits' earths, on the ledges of cliffs, or

upon the ground. The eggs are pure white, completely oval, suboval or elongate, in shape, and are usually from two to five or seven in number; some Owls, however, after good feeding, when small mammals are abundant, become more prolific, and lay ten, or even twelve or thirteen eggs. The eggs are usually laid at intervals, and the warm down of the Owlets first hatched assists in incubating the later eggs. It thus happens that in the same nest Owlets of different age and progress towards maturity will be discovered, together with freshly laid eggs. The nestlings are at first covered with a white or greyish down.

The Owls are dispersed over all parts of the world; about two hundred species are now known and described. They vary in size from the tiny Sparrow-Owls *(Glaucidium)*, no larger than a Finch, to the fine Eagle-Owls *(Bubo)*, which are over two feet in length. Many of the Owls are found in two forms of plumage, a grey form, in the northern and north-eastern parts of the world, and a red form, in the west and south. Their classification is a matter of difficulty to systematists; the ten Owls upon the British list, comprising four residents and six occasional visitors, are ranked in nine genera! Ornithologists, as yet, appear to be unable to decide upon the features which offer the best basis for arrangement, the ear (a most important organ with the Owls), the skeleton, or the feathers.

In general, the nocturnal Owls possess the most rounded heads with the largest ears, and these are further provided with an operculum, or lid, consisting of a fold of skin edged with short feathers, and moved by voluntary muscles, serving both to protect the large orifice of the ear, and to form a conch for the reception of all the undulations of sound. The nocturnal Owls hunt for their prey with equal assistance from the senses of sight and hearing; in the diurnal Owls, inhabiters of high latitudes, the orifice of the ear is smaller, and is without an operculum; these Owls chiefly depend upon their powers of vision to discover their prey. Some of the Owls have upright tufts of feathers on their heads, which are variously called horns, or ears, but they are in nowise connected with the organs of hearing.

The Owls are a very interesting and useful family of birds, deserving to be both valued and protected for the services they render to the agriculturist; they can be easily kept in confinement, and the smaller kinds become amusing pets; they are always in excellent plumage, provided they are properly fed; their food should never be without something in the nature of feather or fur; like all other raptorial birds Owls void the undigested portions of their food in the form of elongated pellets, and this they cannot well do without the

assistance indicated. When in captivity many of the species never seem to require water either to drink or to bathe in.

The food of Owls consists of rats, mice, voles, moles, bats, small birds, large moths and beetles, earth-worms, frogs, and fish. The larger Owls, such as the Snowy and Eagle Owls, devour, in addition to this dietary, fawns, hares, rabbits, squirrels, grouse, and other winged game.

Owls moult but once in a year, and are in their best plumage during the winter; their feathers do not possess any after shafts, as in the *Falconidæ*. In colour their plumage is generally brown, or reddish brown, mottled, barred, or vermiculated with various shades of brown, black, and grey, thus corresponding with the tints of their surroundings in the bark and trunks of trees, &c., and is protective, serving to conceal them from the notice of their prey. The male is smaller than the female, and there is, in general, no difference in the plumage of the sexes. Although Owls have the appearance of being large birds this is chiefly due to their mass of soft plumage; when they are handled it is at once discovered that their bodies are small in proportion to their apparent bulk, and that they are made up chiefly of feathers.

The genera of Owls on the British list may be tabulated as follows:—

I.—Owls that have an operculum to their ear cavities; these Owls are almost exclusively nocturnal.

STRIX, *Linnæus*.—Facial disk large and complete, narrowing rapidly below the eyes towards the beak. Legs long, and clothed with downy feathers to the origin of the toes, which are covered above with a few bristle-like feathers; hind toe reversible; claw of the middle toe serrated on the inner edge.

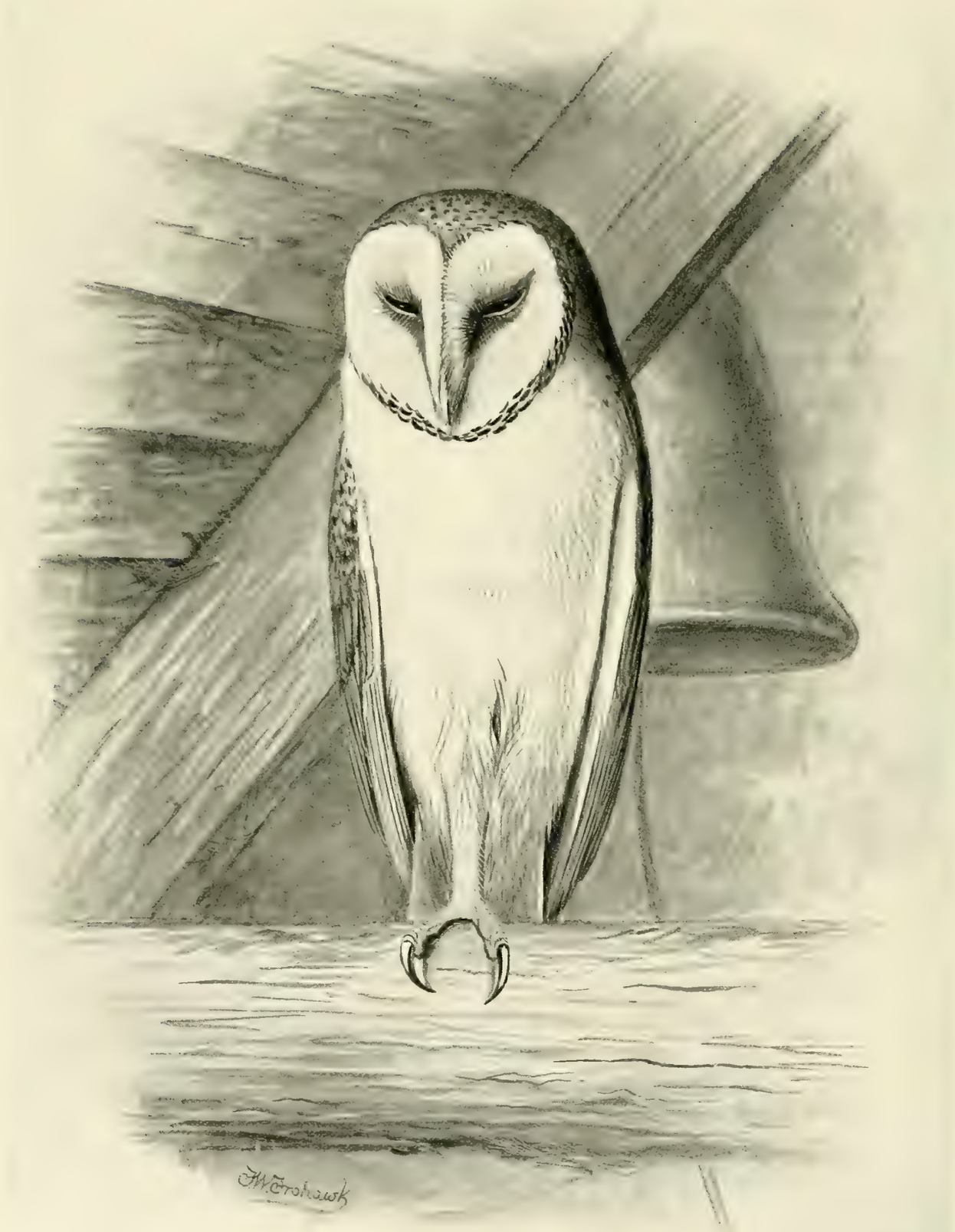
ASIO, *Brisson*.—Facial disk complete. Auditory opening asymmetrical. Legs and toes feathered to the claws. Two tufts of feathers on the head more or less elongated.

SYRNIUM, *Savigny*.—Facial disk large and complete. Head large and rounded. Legs and toes feathered.

NYCTALA, *C. L. Brehm*.—Facial disk large and nearly complete. Legs and toes thickly feathered. Auditory opening asymmetrical, the bones of the skull affected and differing on either side.

II.—Owls that are without an operculum to their ear cavities; these Owls are either entirely or partially diurnal.

ATHENE, *F. Boie*.—Facial disk not well defined. Legs long, covered with short feathers; toes covered above with bristles.



WHITE OR BARN-OWL ♂ ½

NYCTEA, *Stephens.*—Facial disk incomplete. Legs and toes thickly covered with feathers.

SURNIA, *Duméril.*—Facial disk nearly obsolete. Legs short and with the toes thickly feathered. Tail long and graduated.

SCOPS, *Savigny.*—Facial disk incomplete above the eyes. Head with two tufts of feathers. Legs rather long, feathered in front; toes naked. Of small size.

BUBO, *Duméril.*—Facial disk incomplete about the eyes. Head with two tufts of feathers. Legs and toes covered with feathers. Of large size.

Family—STRIGIDÆ.

WHITE OR BARN OWL.

Strix flammea, LINN.

THIS beautiful Owl ranges throughout the world in the tropical and temperate zones. It is not found in the north, and in the British Isles becomes scarce in Scotland. It resides with us throughout the year, but some of our home-bred Owls may leave us for the south in the winter, at which time we also receive an immigration from the Continent, as is proved by the dead bodies of Barn Owls having been found hanging frozen in the nets stretched along the sands in the South-eastern counties to capture passing flocks of ducks and waders.

The Barn Owl varies greatly in size and in colour in different parts of the world; all the foreign varieties are now regarded as only local races of our English bird. Even in England great variations are met with from the typical form, including light and dark birds, and those intermediate in colour. The plumage of the ordinary type is flame-yellow on the upper parts, speckled with grey, and with spots of white and black; the primaries are indistinctly barred with dusky brown,

the inner webs chiefly white; the tail is buff, with five transverse grey bars; the under parts are white, sometimes with a few dark spots; the facial disks are white, with a rusty yellow patch near the eye; the ruff is reddish yellow, tipped with brown; the beak is white; irides black. The whole length is about fourteen inches. The female resembles the male, but is slightly darker on the upper parts, and is considerably larger. Young birds are a little darker than the adults. Varieties are commonly met with having the yellow of the upper parts more largely interspersed with white, giving a mottled appearance; the tail is occasionally pure white throughout; and dark birds occur having all the under parts fawn colour, with dark spots, and the upper parts blacker.

Other common names for this species are the Screech Owl, and the Church Owl.

The body of the Barn Owl is very light compared to its bulk, rendering its flight buoyant and somewhat unsteady. When come upon suddenly in its roosting place in a corner beneath the roof of some shed it will assume ridiculous postures, throwing itself almost upon its back, hissing and snapping its beak, and seeking to defend itself with its claws, which are capable of inflicting an ugly scratch.

There is no more useful bird to the farmer than the Barn Owl, and its value was fully appreciated by former builders of barns who always left an Owl's window, *i.e.* an opening in the wall below the roof to afford the Owl an entrance to deal with the rats and mice harbouring within. In destroying Owls with their guns and cruel pole-traps, keepers, who ignorantly credit them with devouring their young Pheasants, have proved but poor friends to agriculturists. The writer who now resides in a well-wooded district, highly preserved, not long ago had an exemplification of this when a neighbouring farmer threshed out a big rick of wheat, and found it swarming with mice that had either devoured or damaged a large portion of the grain. Close at hand stood an ancient ivy-covered church tower, which would certainly have provided a home, could they have escaped persecution, to the useful birds whose vigilance would have prevented the devastations of the mice. The Barn Owl feeds almost exclusively upon rats and mice, and destroys a great number of these mischievous pests, especially when there are Owlets to be fed, at which season Waterton noted that a mouse is brought to the nest every twelve minutes. This was out-done by a pair of Barn Owls watched by Lord Lilford who were seen to come to the nest with food "seventeen times in half an hour by the clock!" It sometimes varies its dietary with small birds, bats, moles, beetles, and fish. A tame White Owl, long in possession of the writer, was very fond of small trout that it invariably bolted tail first. Mice are swallowed whole, and the capacity of the Owl's stomach is great, enabling it easily

to put away at least half-a-dozen mice one after the other; digestion, too, is marvellously rapid. . . A tame White Owl, after it had been fed up for the day, nevertheless managed to swallow thirteen mice that unexpectedly arrived as a present! Besides the numbers of mice that they devour, many are also stored away by the Owls in "larders" by the side of their nests; representatives of four distinct species of mice, all equally destructive to field and garden crops, were found in a single nest; and the pellets of Owls that have been examined by naturalists have been found to be composed entirely of the remains of mice, thus proving the useful services rendered by these birds. Tame Owls, when food is given to them and they are not hungry, will always secrete it in some corner.

But in spite of the good performed by the Barn Owl there is, perhaps, hardly any other bird that is so persecuted, and so ungratefully repaid. When they cannot find any other excuse keepers will say they kill them because they are "unlucky!" There is no bird more commonly found stuffed and distorted in a case in cottages and farm houses throughout the land than this poor Owl, the writer has always made it his endeavour to plead for and to protect. Then too, there is the wretched fashion of turning the masks, wings, and tails of these birds into fire-screens, and the still more senseless decoration of ladies' hats with their soft and downy feathers. There is hardly any season of the year when specimens of the four common English Owls, and chiefly of the Barn Owl, may not be noticed hanging up for sale in Leadenhall market, in London, and on inquiring for what purpose they are bought, the answer has been given to the writer, "These, sir, are fancy birds, people buy them to have them stuffed." No wonder rats and mice multiply, and in some parts of the country occasion great damage and loss, when all the rural police who would have looked after them have been so foolishly removed! The once familiar Barn Owl is now but too rarely seen flying low over the hay-fields at dusk, and quartering them like a setter, every now and then checking its flight to drop with fatal pounce upon its prey; or beating the farm buildings and rick yards, next taking the round of the orchard fence, faithfully performing its useful and valuable work that should bespeak its grateful protection!

In severe winters, especially after long continued snow, numerous Barn Owls perish from the cold and starvation; and their frozen bodies, reduced to mere bone and feather, may be picked up lying on the surface of the snow. In their extremity they will enter houses for shelter, only too often to be ejected by timid and ignorant people who superstitiously regard them as bearers of ill luck! These Owls can only endure a temperate climate, and our winters are sometimes too severe for them.

Although usually a recluse, preferring its "solitary reign" in some "ivy-mantled

tower," instances are sometimes met with of the Barn Owl dwelling in society, in numbers sufficient to warrant the designation of an "Owlery." The writer knew of certain old cottages, just beneath a beautiful Henry VII church tower, which had all their roofs communicating, and these were tenanted by such a number of Barn Owls that the cottagers at last rose against them and ejected them, being disturbed by their strange noises, and some thirty or forty were expelled.

A country house in North Devon had its roof similarly occupied by a society of Barn Owls, and here, too, the birds were voted a nuisance, and were driven out. There are other species of Owls that are known occasionally to congregate.

The Barn Owl begins to nest sometime in April, and has, in general, more than one brood. The eggs are elongate, rounded at the ends, and are pure white in colour, smooth, and without gloss, usually from three to six in number, but a clutch of eight, and in another case even of ten has been met with; they measure from 1·78 to 1·53 inches in length, and from 1·27 to 1·18 inches in breadth. A hole in a tree, the top of the wall of a cattle shed, or barn, just beneath the roof, a church tower, crevices in cliffs, both inland and by the sea, ivy covered ruins, dove-cotes, and old chimneys, are among the usual sites chosen for depositing the eggs; no nest is made, and it is a usual thing for the eggs to be laid at intervals; first two are laid and incubated, and when the young are hatched two more eggs are laid, and these, in turn, are helped in incubation by the warm down of the Owlets squatting upon them; then other eggs follow in succession, so that there may be found in the same nest Owlets nearly fledged, others in down, eggs partly incubated, and the addled egg that is rarely absent.

The note of the Barn Owl is a loud shriek uttered by night when the bird is on wing. While gathering moths *(noctuæ)* off the sallow-blooms at night by the light of a lantern, the writer has been startled by a Barn Owl suddenly delivering an unearthly shriek almost in his ear as, attracted by the light, it swept softly by to see what was going on.

The young birds make a snoring sound, and snap their beaks when in the nest, and are covered with white down.

When detected asleep upon its perch the Barn Owl presents a very wedge-shaped appearance; the thick end of the wedge is provided by the head, the body tapering off to the legs and tail.



LONG-EARED OWL ♂ ♀.

Family—STRIGIDÆ.

LONG-EARED OWL.

Asio otus, LINN.

THERE are two species of the genus *Asio*, Tufted Owls, common in the British Isles, easily distinguishable from each other, first by the length of their tufts, and in the second place, by their haunts; the Long-eared Owl, the first of the two to be considered, being a dweller in woods, while the Short-eared Owl avoids them, and is found on open moors and fens. The plumage, also, presents many marks of distinction. The Long-eared Owl is generally dispersed over the British Isles, but is chiefly known as a winter visitor to the extreme western counties of England. It is very common in the large fir-woods in Scotland, and in general is a lover of evergreen plantations, where it roosts throughout the day, sitting on a branch close up to the bole of the tree, where it is hard to distinguish it on account of the close correspondence between the general colour of the bark and that of its plumage. If a stranger approaches its roosting place, or it becomes suspicious of any danger, it elevates its tufts, and becomes watchful and observant, ready at an instant to flit off on silent wing to another perch. In the autumn large numbers of these very pretty Owls cross over to us from the Continent, and the woods in the eastern counties are sometimes full of them at that season.

The Long-eared Owl does not leave its roost until the dusk, when it flies abroad in search of rats, mice, voles, or small birds, seizing the latter off their perches; it also feeds on large moths and beetles. Lord Lilford, who possessed a greater acquaintance with Owls and their ways than any other English ornithologist, owing to his fondness for them and the number of species he had from time to time alive in his aviaries at Lilford, remarks "from my own observation I am inclined to think that the Long-eared Owl prefers small birds to quadrupeds as food, though it no doubt destroys many field-mice and voles," adding "all the Owls of my acquaintance are very fond of a diet of fishes." The Long-eared Owl breeds early in the year, often in February or the beginning of March; it never nests in a hollow-tree, but selects the deserted nest of a Crow, Magpie, or Wood-Pigeon, repairing it, and lining it

with feathers and down; sometimes the old drey of a squirrel is chosen. The eggs are white, slightly glossy, and are elliptical in shape, and of about the same size as those of the Barn-Owl, and are usually four in number, but as many as seven have been met with, and, as in the case of the Barn-Owl, both young birds and eggs are found in the same nest. The nestlings are at first covered with light yellowish-grey down, barred with faint brown, and have two conspicuous tufts in their head even at this early stage. When they are fully fledged they sit out side by side together upon a branch, and form a pretty sight. The family may keep together longer than the young of other Owls are permitted to associate with the parents, for the writer once in the autumn met with a keeper who having just seen a single Long-eared Owl perched upon the top of a bank fired at it, and found that he had killed five of these Owls that had been all squatting very closely together. He had all five birds with him, and the writer selected two of them that were in very fine plumage to skin for his collection.

The flight of the Long-eared Owl is very light and buoyant, owing to its long wings, which extend beyond the tail when closed, and it seems to resemble the Harriers more than any other of the Owls. It is dispersed all over Europe, except in the extreme north, and is also found throughout Central Asia, and is a winter visitor to the North of Africa. It is represented in America by a closely allied sub-species, *Otus Wilsonianus*, which appears to be sociable at the nesting season. Dr. Coues speaks of a thicket of pines which in the dreary winter months was a great place of rendezvous of the American Long-eared Owl, and where, in the spring-time, the females deposited their eggs in rude and unsightly nests of their own construction. The numbers were prodigious, so that there were very few of the trees, if any, without two or more nests. "The many fragments of the bones of mammals and birds, and the other remains of the same that laid in piles upon the ground, bore testimony to the wholesale destruction of life that was carried on." The cry of the Long-eared Owl is said by Dresser to be a deep hoot, others state that it utters a note like the barking of a spaniel, while the young birds make a noise somewhat similar to the mewing of a young kitten that may be heard at a great distance. The writer is disposed to doubt this Owl's ever hooting; a long cat-like wail, or scream, proceeding from his fir plantations at night was by him believed to be the cry of *Asio otus*.

The plumage of the Long-eared Owl is full and soft, and is very elegant in its coloration. Upon the head are two tufts of about seven dark brown feathers edged with yellow that project about one-and-a-half inch; the upper parts are



SHORT-EARED OWL ♂ ♀

light reddish yellow prettily speckled and streaked with black, ash-colour, and white; the wings and tail are barred with black and grey; the tail is also speckled over with dusky and grey; facial disk pale yellowish-brown; ruff white at the base and tipped with black; under parts buff coloured, the feathers with a central black shaft, and slightly undulated with black; legs and toes covered with pale ochreous down. Beak and claws dark horn colour; irides orange yellow. The female is somewhat darker and larger than the male. In size the Long-eared Owl approximates to the Barn Owl, measuring from twelve to fourteen inches, according to sex.

Family—STRIGIDÆ.

SHORT-EARED OWL.

Asio accipitrinus, PALL.

IF the preceding species belongs exclusively to the wood-frequenting Owls that are only at home among the branches of trees with dense foliage, the Owl now to be treated of may be called a ground Owl, as it rarely, if ever, perches on trees, but inhabits moors and marshes, where it squats during the day, resting on the full length of its tarsi, among the tumps of coarse grass and rush. Although one of our resident species, it is chiefly confined to the northern parts of the Kingdom, and it is only in the autumn and winter that it is dispersed over the whole of our islands, when numbers cross into this country from the Continent, and, arriving at the same time as the Woodcock does, this Owl often goes by the name of the Woodcock Owl. It is commonly flushed by Snipe shooters in the winter, getting up at their feet out of any cover provided by the herbage, and is also frequently met with in turnip fields in October and November, and as setters will own and draw on the scent of these birds the

sportsman is greatly astonished when he sees two or three cherubic looking Owls rise solemnly before his dogs, instead of the expected covey, and flying off with a buoyant, gull-like, flight. The Owls soon drop into cover, but become wild if again disturbed, and will not permit a close approach, not unseldom mounting by circles high into the air, even if there be bright sunshine, and disappear out of sight. The writer has moved one in the day-time from a dead Peewit, whose head it had just torn off, after the manner of Owls, for its first bite, showing that this species is not entirely nocturnal; but will occasionally hunt for its prey during the day. The Short-eared Owl is often found in the winter time congregated in some numbers; indeed, it is rare to flush a single bird, as there are generally three or four on the ground close together; on sand hills on the coast the writer has put up over twenty at a time, and it was not a little amusing to see so many on wing at once, circling round, and then dropping one after the other into the rushes. On the curious peat-moor district in Mid-Somerset the Short-eared Owl is sometimes abundant, and the writer has flushed more Owls than Snipe in a day's shooting. One of the Owls once perched on the top of a large furze bush to watch the movements of the shooting-party, the only instance, in the writer's experience, of its alighting on anything like a tree, although he has occasionally seen it perched on the top of a wall. On the Lincolnshire coast the Short-eared Owl is commonly captured in the flight-nets stretched for wild fowl in the autumn.

This species has a very wide range, being found in most parts of the world; it is distributed over Europe, Asia, America, both north and south, over Africa, as far south as Natal, being a winter visitor to the southern limits of its range, and in some countries it is only seen on passage in spring and autumn. A few used to breed regularly in Suffolk, Norfolk, and Cambridgeshire, especially preferring the fens, and there may be still a few pairs nesting in certain protected spots. Its nest has been found in single instances in Devonshire, Hants, and Pembrokeshire; several in Cardiganshire, in 1874, on Sir Pryse Pryse's estate. In the northern counties it is more frequent as a nesting species on the moors, and it nests commonly throughout Scotland. In the years from 1888—1891, when the common field-voles multiplied to such an extent as to become quite a plague in some of the Scotch lowland counties, a great number of Short-eared Owls were attracted by the abundance of their favourite food, and nests of these birds were found in the fields containing upwards of a dozen eggs, proving that, like other members of the Owl family, this species becomes extra prolific when it can obtain plenty of food. When the voles were at last all destroyed, many of the Owls were picked up starved and dead upon the ground; the instinct that had brought

them to the feast not appearing to have been equal to lead them to shift their quarters elsewhere when all the voles had been devoured. The cause of the plague was assigned to the destruction of Owls by game-keepers; the absence of nature's check had enabled the voles to multiply until they became a formidable pest. Montagu records a similar instance in the neighbourhood of Bridgwater, when a large portion of the vegetation was destroyed by an immense swarm of mice, and in the autumn a great many Short-eared Owls resorted to prey upon them. Besides devouring countless mice the Short-eared Owl will also capture small birds, such as Larks and Yellow Hammers, an occasional Plover or Grouse. rats, voles, bats, beetles, and fish.

Numbers of the Short-eared Owl, according to Gätke, are seen on the tiny island of Heligoland, during the spring and autumn migration. The people of the island "pursue this bird very zealously, and assert that, roasted, they furnish the finest dish a man could wish for. The birds are, as a rule, pretty fat, and their white flesh certainly looks very tender and appetising." In their short stay on the island these Owls appear to feed on rabbits, and also upon the smaller birds that are migrating in their company. "During dark autumn nights, when a strong migration is in progress, and Larks, Thrushes, and other species swarm round the lighthouse in great numbers, this Owl may very often be seen darting up suddenly from the surrounding darkness into the glaring light of the lantern, and with dexterous beatings of the wing disappearing again with equal rapidity. Immediately afterwards, the plaintive cry of a Thrush announces with what certainty this robber plies his trade in the course of his nocturnal flight."

This Owl makes no nest beyond scratching a slight hollow in the ground where it rakes together a little dry grass in a slovenly fashion; the nest is occasionally placed under a small bramble or furze-bush for protection; the eggs are from three to six, sometimes seven, or even more, in number, are white and smooth, and measure from 1·74 to 1·37 inches in length, by from 1·33 to 1·15 inches in breadth. Sometimes they are speckled over with a few spots of dark red; the writer has seen such a clutch, taken in the Orkney Isles. This species nests late; its eggs are rarely found before the middle of May.

The Short-eared Owl has the head comparatively small; the tufts are about $\frac{3}{4}$ths inches in length, and are elevated or depressed at pleasure: they are said to be erect when the bird is sleeping, and depressed when it is disturbed. The general colour of the plumage is dark buff, broadly streaked and blotched with dark brown; wings barred with brown; tail buff, tipped with white, and barred with brown; under parts ochreous, with blackish-brown streaks; legs and toes covered with pale buff feathers; facial disk buff, streaked with dark brown, the

feathers nearest to the eye black; ruff yellowish-white, speckled with blackish-brown; beak and claws blackish; irides bright yellow. The female is darker than the male, and is larger; length from twelve to fourteen inches. Young birds are much darker in plumage than the adults. There is a considerable variation in the colour of plumage; the writer has seen some old birds that looked quite white when on wing. Seebohm considered these very light coloured birds to belong to an Arctic race.

Lord Lilford writes "I have kept a few of these birds in confinement, but with one exception, never succeeded in really taming them. The exception was a most delightful bird, which would follow me about, come to whistle, and sit upon and feed from my hand, but did not live long." Wheelwright, in his "Spring and Summer in Lapland," states that the loud cry of the Short-eared Owl, *wau-au*, is like the barking of a dog, and that it indulges in curious gyrations in the air while flying over the fells in the light summer nights that are not unlike those of the Peewit.

Family—STRIGIDÆ.

TAWNY OWL.

Syrnium aluco, LINN.

THE Tawny Owl, Brown Owl, Red Owl, Wood Owl, or Hooter, to mention its most familiar aliases, possesses the distinction of being the largest of the native English Owls, and, in most parts of the kingdom, it is still the commonest species. It is a matter of regret that this fine Owl, and most useful



TAWNY OWL ♂ ♀

bird, has been well-nigh exterminated in many districts by gamekeepers in the supposed interest of their Pheasants. It is almost useless to plead with them in the poor Owl's behalf.—"See these 'ere talons?" says the man in velveteens, "see this 'ere beak? don't tell me he don't eat game," and although sometimes with a view to a tip, some unfortunate may be momentarily spared, yet the tree in which he has harboured has been marked, and on the first opportunity he has been added to the other victims in the keeper's larder. If it could only be considered that, in the night season, when the Tawny Owl comes abroad to hunt, all young Pheasants are either safe within their coops, or hovered by their mothers in the covers, the poor bird might be acquitted of mischief which it is not possible for it to perpetrate. As the Owl beats over the fields it is not to be denied that, once in a way, a young Partridge or two may be snatched off the ground, especially when there is a brood of hungry Owlets to maintain, and Lord Lilford admits "I cannot acquit the brown Owl of an occasional bit of poaching, but I am convinced that such occurrences are exceptional, and, in defence of a very favourite bird, may refer my readers to the result of an examination of two hundred and ten pellets, composed of the indigestible portions of food thrown up by birds of this species quoted in Yarrell's British Birds, 4th Ed., p. 148." In these pellets the remains of six rats, forty-two mice, two hundred and ninety-six voles, thirty-three shrews, forty-eight moles, eighteen small birds, forty-eight beetles, besides a countless number of cockchafers, were discovered, incontestably proving the general innocent nature of the Tawny Owl's bill of fare.

It is in woodland districts that the Tawny Owl is most numerous, and when dusk has shrouded the country hoot may be heard answering hoot, and very easy it is by imitating the call to procure answers from all the Owls within hearing. In a wooded valley in Wales no fewer than twenty-six separate Hooters were thus provoked to reply one fine moonlight night in the autumn. The Wood Owl hoots when it first flies forth at dark, and at intervals throughout the night, seeming to prefer a still moonlight night when it is most vociferous, and again at dawn; and frequently, in the pairing time, the hoots may be heard, off and on, throughout the day. An admirer and friend of this Owl, after long observation, imagined that he had discovered in its hootings unfailing indications of the weather, reporting "I have for years observed that when the Owl is merry at early dawn we are pretty sure of a fine day. Also, if he is merry at early evening, we are pretty sure of a fine quiet night. While, if the Owl breaks out with 'Hoo-hoo-hoo-Too-vit' by day, and takes a flight, stormy weather is sure to pretty soon follow." During the day the Tawny Owl sleeps in his favourite

roost, to which he invariably returns; the same Owl has been known to occupy the same perch for many years. The writer had numerous Tawny Owls residing round his house in Wales in a semi-domesticated state; during the day some of them were frequently observed roosting on the roof among the chimney pots; the favourite stations of others were well known in their various trees, so that when friends came who wished to see the Owls they could be readily found and exhibited. Occasionally they would be in evidence sunning themselves on bare branches in the early spring, at which season not only would they hoot throughout the day, but also continually made a soft, shivering, mating call. The impudent Jays would closely imitate them, or else, heading a party of Mistle Thrushes, Chaffinches, and Tits, would mob and tease one of the Owls until they compelled him to shift his perch; this is a common woodland episode. The Tawny Owl nests in March or April, either in a hole in a tree, or in an old Crow's nest; sometimes in a chimney, or empty dove-cote; occasionally in a rabbits' earth under ground. The eggs are larger than those of any other English Owl, are white, smooth, glossy, and suboval in shape; they are from three to five in number, and measure from 1·96 to 1·68 inch in length, by from 1·64 to 1·43 inch in breadth. The nest needs to be cautiously approached, as the Tawny Owl will valiantly defend its abode, and is particularly fierce after the Owlets are hatched, when the old birds will sally out to buffet anyone who passes near. One of the entrances to a house belonging to a friend of the writer was closed for a time owing to a pair of Tawny Owls that had their nest in a fine elm by the gate refusing to permit anyone to approach without attack; and boys who have robbed nests of the young have been seriously injured, their eyes scratched and torn out. The nestlings are at first covered with a yellowish grey down, barred with sooty brown. "The young birds," to quote Lord Lilford once more, "are easy to rear, become very tame, and, from their solemnity of expression and the grotesque attitudes which they assume, are among the most satisfactory inmates of an aviary."

The Tawny Owl is distributed in all the wooded parts of the British Isles, with the exception of Ireland, where it is said not to occur. There are two common forms in which it is met with, a red plumage, and a grey; the rufous form is the ordinary Red Owl most usually met with; the grey plumaged birds are more common in the eastern counties of England, where they are not to be regarded as migrants from the Continent, but as residents, as is proved by young birds in the grey plumage having been taken from the nest. The Tawny Owl is distributed throughout Europe and Western Asia; the majority of the foreign Owls of this species belong to the grey form. The diet of the Tawny Owl,

besides the items already mentioned, sometimes comprises small fish, such a loaches and bull-heads, and earth-worms, but there can be no doubt that short-tailed field mice form the standing dish. The writer had numerous young Pheasants close to the spots where his favourite Owls harboured, and is confident that none of them were ever taken; young rabbits would occasionally be devoured, and instances are known of leverets being eaten, but mice and insects are the favourite food.

When it is hunting in the dark the eyes of the Tawny Owl scintillate like red hot coals. One of the writer's tame birds settled within a few inches of his head on a branch of a tree close to which he was standing in wait, at dusk, for marauding magpies in a plantation, and the brilliant glare of its eyes, directed straight to the front, will never be forgotten.

The Tawny Owl has the facial disk very large and complete, with a conspicuous and complete ruff; head extremely large and round; tarsi very short with the toes densely feathered; wings long and much rounded; tail broad, rounded, of twelve arched and rounded feathers. The plumage, which in its general tints closely matches those of the surroundings of the roosting place, is full and very soft; reddish or greyish brown, mottled and longitudinally streaked with dark brown; on the wings and scapulars are some large white spots. The beak is whitish-horn colour; irides almost black; eyelids edged with pink; claws horn white with darker tips. The female does not differ from the male, but is larger. Length from fourteen to sixteen inches. Young birds are rather more rufous than the adults in the red form, and are grey in the grey form.

Family—STRIGIDÆ.

TENGMALM'S OWL.

Nyctala tengmalmi, GMEL.

THIS small and prettily mottled wood Owl is only a rare visitor to the British Isles from the northern countries of Europe. Harting enumerates twenty instances of its occurrence, but it seems to have been occasionally confounded with the Little Owl, which southern species may have also been taken for it, so that it is uncertain how many of the recorded appearances of Tengmalm's Owl really refer to that bird. An undoubted Tengmalm's Owl that was obtained in Somerset was at first considered to be a Little Owl. Those that have been met with in this country were captured chiefly during the spring, the majority of them on the eastern coast, and in Scotland; Tengmalm's Owl has not been yet obtained in Ireland. It inhabits the mountain forests of northern Europe, and the mountains of the south, such as the Pyrenees, the Alps, and the Carpathians; the northern parts of Asia, and North America, as far north as Alaska and Labrador, where it is of a darker plumage, coming as near to the British Isles as Sweden and Norway. It is strictly nocturnal, only issuing forth at dusk to hunt for its prey which consists of the usual Owl dietary, small birds, lemmings, mice, and beetles. Wheelwright states that, next to the Hawk Owl, "it is the commonest Owl in the forests of Lapland, but being much more nocturnal in its habits was not so often seen; not that the light appears much to affect its vision, for here the summer nights are as light as day, and we rarely went into the forest on any night without seeing this pretty little Owl hawking after its prey. It is a bold, voracious little bird. The call note was a very musical soft whistle, which, however, I never heard except in the evening and night." Tengmalm's Owl nests in April or the beginning of May in holes of trees, sometimes occupying the deserted nest of the great Black Woodpecker; sometimes one of the boxes set up by the peasants for the Golden-eyed Duck to lay in; the eggs vary much in shape, "in the same nest you will see some eggs as round as musket balls, others oval and elongated;" the usual size is about one and three-eighths of an inch by one inch: they are pure white, and fine in grain, and are generally four in number, rarely six or seven, although as many as ten have been found.



TENGMALM'S OWL

The migrations of this small Owl mainly consist in its coming down from the mountains into the plains, in the autumn, in search of food; it appears in the north of Germany about the same time as the Woodcock, and although some individuals go further to the south, there are no instances of its having crossed to the African side of the Mediterranean. Lord Lilford states that he received "five of this species alive from Helsingfors in the summer of 1888. I did not notice that their habits differed from those of other Wood Owls in captivity, except that they were much less active and savage than some Hawk-Owls received in the same consignment. They were voracious feeders, and great bathers, and seemed to be in no way inconvenienced by bright sunlight. The chief peculiarity of these birds was their cry, which, as mentioned by Wheelwright, is a very musical, long-drawn whistle, quite unlike the note of any of the numerous Owls with whom I have the honour of personal acquaintance. Although these little Owls seem to bear captivity well, and did not exhaust themselves by struggling to escape, I lost them all within two years, and vainly tried to discover any cause for their death."

In shape Tengmalm's Owl is a Tawny Owl in miniature, having a very large head, with complete facial disks and ruff. The plumage is very soft and full; the feathers are broadly oblong and rounded at their tips; wings long, broad, and rounded; tail of moderate length, arched, and rounded; the tarsi are short, and together with the toes, are profusely covered with soft, downy feathers. The general colour of the upper parts is greyish-brown, tinged with olivaceous; the feathers of the head have each a central oblong white spot; those of the hind neck are similarly marked with larger white spots, some of which form a semi-circular band; the scapulars have round white spots towards the end, and some of the dorsal feathers and wing-coverts have single white spots on the outer web: the wings are barred with white spots, as is also the tail. The lower parts are yellowish-white, longitudinally streaked with brown. Beak yellow, black at the base; claws black; irides yellow.

There is no difference in the plumage of the two sexes; length eight and a half to nine inches. In some species of Owl, such as those belonging to the genus Asio, it has been discovered that the orifices of the ears differ on either side in shape and size. In Tengmalm's Owl this asymmetry is very remarkable and even extends to the bones of the skull, which are unaffected in the other Owls.

Family—STRIGIDÆ.

LITTLE OWL.

Athene noctua, SCOP.

THIS favourite inhabitant of our aviaries, on account of its amusing gestures, is largely imported from various parts of the Continent, so that it is impossible to say how many of the appearances at large in this country that have been recorded may not have been due to escapes. Still, as it is abundant so near to us as in Holland, there would be nothing remarkable in its occasionally crossing the water, and paying us a visit, and nearly every county in England has produced an example. One, known to the writer, was shot at Clevedon, in Somerset, while it was flying about, in the day time, mobbed by Sparrows. A great many Little Owls have been turned loose from time to time, and some have actually nested and reared young in a wild state, but this small Owl cannot be said to be yet acclimatized in this country. No doubt, many of the Little Owls that have been shot at large, of late years, have been provided by these turned out birds, that have spread themselves abroad throughout adjoining counties. Only quite recently the writer heard of two that had been shot when sitting side by side on the branch of a tree in a cover not far from Bath.

The Little Owl is somewhat smaller than Tengmalm's Owl, from which it also differs in general appearance, as well as in its distribution and habits. It is not so loosely feathered, nor has it such a profusion of downy feathers about its legs and feet; on the contrary, its toes are only partially covered with bristles instead of feathers. It is a dweller chiefly in the south, where it prefers inhabited districts, while Tengmalm's Owl is a northern bird that avoids the haunts of men in mountain forests. Nor is the Little Owl so boldly mottled in its plumage.

The Little Owl ranges throughout the whole of the central and southern countries of Europe, being replaced on the African side of the Mediterranean by a paler sub-species, *Athene meridionalis*. During the day it secludes itself in gardens and thickets, or among buildings, being fond of the sheds around farm yards; it also frequents churches, old towers and ruins. But it is partly diurnal, for Lord Lilford says it delights in the sun, and is often active during the hours



LITTLE OWL ♀ ♂

of day-light, being at once chased by small birds, such as Starlings and Swallows, whenever it takes flight, which it does "like a bat, with butterfly-like uncertainty," according to Seebohm. In general it does not come forth to search for its food until just before dusk. It is an early breeder, nesting in holes of walls, in church towers, in holes of trees and rocks, and Lord Lilford found it in Spain nesting in holes in the ground among the roots of old cork and olive trees. Its eggs are four or five, sometimes seven, in number, glossy white, and oval in shape, measuring from 1.48 to 1·28 inch by from 1·2 to 1·09 inch. It is a very courageous bird in defence of its nest, sallying out and buffeting any passer by. The cry of the old birds when they have young ready to leave the nest is said to resemble the alarm cry of the Blackbird; at other times they make a short barking hoot. This small species will nest readily in confinement, but, in common with other birds in unnatural conditions, its instincts become vitiated, and it will devour the young directly they are hatched. With proper food and care it will live a great many years in captivity, keeping in beautiful plumage; the chief essential being that it must never remain long without fur or feather. The Little Owl is very fond of insects, and is often to be noted on the ground eating beetles, or earthworms. Some tame ones belonging to the writer are extremely fond of cockroaches, of which they will devour great numbers at a meal. These small Owls can stow away an extraordinary number of mice; two of them one afternoon devoured thirteen, and ten more the next morning, without appearing to be in any way distended or inconvenienced. They are so tame and familiar with the writer that they seldom indulge in any of their grotesque contortions when he visits them, but should he be accompanied by a stranger, especially by a lady in a hat or bonnet, they at once evince their excitement, drawing up their bodies in jerks to their fullest height, and suddenly telescoping them again, with queer bowings, to the general entertainment of the spectators. Sometimes at night they receive visits from a Tawny Owl that flies out of a neighbouring plantation and perches on the roof of the shed in which they are kept, when great is the music, as the deep hoots of the stranger are replied to by the short barking notes of the small captives. Little Owls in confinement never require water to drink or bathe in; indeed, it is said it is fatal to them to get wet. They are voracious in their appetites, as may be judged from what has been stated above; one day, not having anything else to give his pets the writer placed a Magpie, just shot in a plantation, in their box; in a very short time the whole of the Magpie had disappeared, with the exception of some of the longest feathers. The Little Owl also devours snails, slugs, caterpillars, and large insects, and is, in consequence, gladly welcomed as an inmate of gardens;

it also captures and eats mice, small birds, bats and frogs. In Italy, where the people will eat almost anything with feathers, it is itself regarded as a dainty, and is often added to the bill of fare. It is much used by foreign bird-catchers as a decoy; tied to a perch and placed near the limed twigs small birds at once recognize their enemy and flying to mob it are themselves taken. It is in particular employed as a lure for Larks; falconers also make use of it to capture Great Grey Shrikes, which are used by them in turn in taking Falcons.

The Little Owl was sacred to Pallas Athene, and appears upon all the old coins of Athens very clearly represented.

The adult male is umber brown on the upper parts; the head is irregularly striped with white; back of the neck, back, and scapulars irregularly mottled with white; rump similarly coloured, and slightly tinged with fulvous; wing coverts more distinctly marked with round white spots; quills brownish, transversely banded with yellowish-white, the outer edges of the feathers spotted more or less distinctly with white; tail reddish-brown, barred with yellowish-white; facial disk and ruff very faintly indicated of greyish-brown, the feathers tipped with yellowish-white; upper part of the breast white, forming a band across the chest; rest of the underparts white, streaked and mottled with dark brown; tarsi covered with yellowish-white hair-like feathers; toes with bristles; bill and irides yellow; feet yellow; claws black. Length eight inches.

The female is slightly larger and paler than the male; length nine inches.

The young birds have the same general markings as the adults; only more slightly indicated, and the plumage is reddish. Nestlings are covered with greyish down, and are blind until the seventh day.



SNOWY OWL ♀ ¼

Family—STRIGIDÆ.

SNOWY OWL.

Nyctea scandiaca, LINN.

THIS fine diurnal circumpolar Owl is an almost regular visitor in the winter months to the Outer Hebrides, and is more frequently seen in the north of Scotland and on its eastern coast, and in the Orkney and Shetland Isles, than it is anywhere in England, to whose southern and western counties it very rarely extends its flight. It has been noted more often in the eastern counties than in the northern or southern, although three examples have been reported from Devonshire. It has occurred in every month of the year, and has been frequently obtained in Ireland, in the north of which island a flock appeared in November, 1838, that had accompanied a ship from Labrador half way across the Atlantic. There is no instance of the Snowy Owl ever having nested within the limits of the British Isles. It is distributed over the extreme north of the old and new worlds; and is an inhabitant of the *tundras*, the bare, treeless plains that three-fourths of the year are covered with ice and snow, where it is the companion of the Gyrfalcon, the Ivory Gull, the Polar Bear, and the Arctic Fox, and of the other denizens of the far north. It breeds beyond the limits of forest growth, within the Arctic circle, in the most desolate plains, where it perches upon blocks of stone, and is very inconspicuous, its plumage blending with the general colour of its surroundings. It is especially fond of hunting by the large rivers that flow into the northern seas, and often captures fish. It is a bird of powerful flight, pursuing and striking down its prey on wing like a Falcon; wild ducks, grouse, sandpipers, hares, and rabbits are captured by it, and it does not disdain the smaller mammals that are chiefly affected by all Owls, such as lemmings, rats, and mice. A fine adult example of the Snowy Owl that was killed on Exmoor at the end of March, 1876, and was examined by the writer in the flesh, was seen to strike down several hares, and was secured in a trap baited with a portion of one of them; the Swedish name of this Owl is *Harfång*, the Hare-catcher. It is stated to be a very shy bird to approach, but is very bold at its nest, swooping down to buffet any dogs that may come near the spot. The nest is composed of a few feathers, with some moss and lichen, placed upon a ledge of rock; the eggs are from six to eight in number, sometimes in a good lemming year being as

many as ten. They are large, slightly oval, rather rough in grain, and are pure white, measuring from 2·44 to 2·1 inches by from 1·84 to 1·68 inches. They are laid at irregular intervals and, as in the case of some other Owls, the first hatched Owlets assist in incubating the later eggs.

The Snowy Owl only migrates a little to the south in winter from its Arctic home in search of food, following the migrations of its prey; some remain in the frozen north throughout the year. Its note is said to resemble a loud *krau-au* repeated several times in quick succession, or sometimes it utters a loud *rick-rick-rick* as it rises startled from its perch.

It is difficult to imagine how the Snowy Owl can find subsistence during the long polar winter if it does not leave the frozen tundras where the rivers are all iron bound with ice, and no fish can be obtained; where the vast dreary plains are covered many feet deep with snow, at the bottom of which the small rodents are either engaged in eating the roots of the grasses, or are wrapped in their winter's sleep; when all the wild-fowl have departed, having fled southwards on the first signs of the dread winter. Very different is it during the continued day of the brief Arctic summer, when the sun never dips below the horizon, all the rivers are free, and the surface of the tundras, directly the snows are melted, become clothed with a sudden vegetation; then the great flocks of ducks, geese, plovers, sand-pipers, and numerous small birds have all returned to their breeding quarters, and the Snowy Owl lays its eggs and rears its young with an abundant food supply close at hand.

Among the phenomena of animal life in the far north are the periodical migrations of the lemmings; these tiny mouse-like creatures are seized from time to time with a mysterious impulse, and collecting in vast hordes start on their journey. Crossing rivers the fish take their toll of them as they swim over; nothing proves an obstacle to their advance, except the ocean, and fortunate is it their line of march does not pass through a cultivated country, or great would be the devastation wrought. Animals and birds of all kinds hasten to the feast, even the reindeer is said to eat them; the Snowy Owls flocking after them are in this manner brought into districts where they are not usually seen, to disappear again with the attraction that has allured them.

Wheelwright states that in Lapland the nest of the Snowy Owl was nothing more than a large ball of reindeer moss, placed on the ledge of a bare fell, and was jealously guarded by the old birds; he adds that the Laps often kill them with a stick when they are robbing the nest. Sometimes the nest is placed on the large turf hillocks in some of the mosses. Wheelwright considered the Snowy Owl more local than erratic, although, in some years there would appear to be a

general migration down from the fells, and the Owls would be far more numerous than usual. A belief prevails among the Laps that the Snowy Owl becomes whiter in winter, and that the female is always purer in colour than the male. Not long ago in a Bristol paper the Snowy Owl was described as "the splendid *silver-spangled* Owl,"—the writer of the paragraph must have been a poultry fancier —however, these words would probably convey to many people an adequate idea of the plumage.

The Snowy Owl is said to indulge occasionally in singular evolutions in the air, darting about from side to side, and then falling prone upon the ground with expanded wings; all the time being as watchful as ever, so that should any one attempt to take advantage of its play, it rises long before he can get near, making off with a mocking cry.

A few days before the Snowy Owl was trapped on Exmoor another had been shot on a rabbit warren in the south of Devon by a boy of ten, the grandson of the warrener. Others were recorded in the county papers as having been seen about the same date, so that Devonshire was probably then visited by a small flock of these fine Owls.

The Snowy Owl passes with quick noiseless flight over the fells and marshy parts of the shore, "more like a large animated snow-flake than a bird," seizing its prey by darting quickly down upon it, and usually devours it on the spot. When it descends to the wooded districts it is said to watch grouse-shooters from some perch on a high tree, and to skim down and carry off the birds that fall to their guns. The Laplanders eat this Owl, and sailors on the Arctic seas say that it makes "excellent beef."

The Snowy Owl does well in confinement, and becomes very docile; and has received the title of an "amiable Owl." When Swaysland had his collection of tame Owls on the West Pier at Brighton, among them was a fine female Snowy Owl, whose breast the writer often stroked, and the Owl seemed pleased at being taken notice of. The Snowy Owl has laid eggs in an aviary, but there is no record of its having reared any young in captivity.

The Snowy Owl has its plumage white; the head and back are spotted with dusky brown; and the wings, tail, and lower parts are barred with the same colour. The older the birds become, the narrower become the transverse markings, and the fewer and smaller the spots, until in some very old birds the dark markings are quite obliterated, and the plumage is perfectly white. The head is large and round; facial disks incomplete above the eyes; ruff incomplete; wings large, broad, and rounded; tail rather long, and rounded, exceeding the closed wings by about an inch and a half. The irides are bright yellow.

The female is considerably larger than the male, and is less white. Length of male twenty-three inches; that of female twenty-six inches.

Few naturalists have seen the nestlings which are said to be covered with sooty black down, with brownish tips.

There is much variation in the plumage, and Seebohm considers there are two races, one whiter, and the other darker. Two very white examples in the writer's collection were received by him from opposite sides of N. America, one from Canada, the other from Oregon.

Family—STRIGIDÆ.

EUROPEAN HAWK-OWL.

Surnia ulula, LINN.

AMERICAN HAWK-OWL.

Surnia funerea, LINN.

THE Hawk-Owl is a very singular and interesting species that inhabits the pine forests of the northern parts of the Old and New World. The American bird is darker in plumage and more broadly barred than the one found in the Palæarctic region, but the two are bracketed together above, as they are merely local races of the same species. Some six or seven examples have occurred in the British Isles, the majority of them belonged to the darker American race. The first was captured off the Cornish coast in March, 1830, and carried to Ireland. One was shot near Yatton, in Somerset, while flying about on a bright afternoon in August, 1847; one at Unst, in the Shetland Isles, in the winter of 1860-61; two have been obtained near the Clyde, in Scotland, one December, 1863, the other November, 1868; another was seen on wing at Musbury, in South Devon, on an afternoon at the end of August, in 1869; and one, believed to be the only example that has been secured in this country of the paler European form, was obtained near Amesbury, in Wilts. As this Owl is resident in Norway, more



HAWK OWL ½

examples of the European race may be expected to appear occasionally on our eastern coasts through some chance when the birds are migrating.

As its name denotes, the Hawk-Owl comes near to the *Falconidæ;* it has a long, graduated, tail; short, sharp, wings; only incomplete facial disks; smaller ears than the night Owls, without an operculum, and flies about swiftly like a Hawk in the day-time, roosting in a tree at night. Its plumage is closer and more compact, and less downy, than that of other Owls. It is an abundant species in the pine woods in Lapland, and Wheelwright has given a good description of its habits. He says:—"The Hawk-Owl is by no means shy, and in the breeding season it is one of the boldest of all birds. Seated on the top of a dead pine, close to the nest where his mate is sitting, the old male bird keeps a constant watch, and as soon as any one appears to be approaching the nest, he raises his tail and head, after the manner of the Cuckoo, and uttering a shrill cry, not unlike that of the Kestrel Hawk, down he comes full on the head of the intruder; dashing by with the speed of lightning, he returns to the charge again and again, till he has either cleared the coast, or has paid the penalty of his rashness with his life. My lad was really frightened at this bird, and always hated to go up to a nest; and well he might, for on one occasion, when taking the eggs out of a dead pine, without a branch to help him, holding on, as the sailors say, 'by his eyelids,' forty feet from the ground, the old bird made a swoop down on his head, struck off his cap (through the top of which a large slit was cut) and in a moment returned to the charge, tearing off a very fair-sized claw-full of his hair. I was standing below, and knocked the old bird over; and had I not been at the bottom of the tree with my gun, the lad might easily have been beaten off his hazardous perch. There is no trouble in shooting the Hawk-Owl if you have only a dog in the forest; for, whatever time of year it may be, as soon as ever the bird spies a dog below him, it always descends to give battle.

"The range of the Hawk-Owl in the north is precisely that of the Siberian Jay *(Garrulus infaustus)*—the lower fir forests at the foot and by the sides of the fells; you never, by any chance, meet with them out of the fir forests. In flight, manners, and appearance, the Hawk-Owl is closely allied to the Hawks. It is strictly diurnal in its habits, and to the stealthy quiet flight of the Owl adds the spirit and courage of the Falcon. Hardly a forest bird is safe from the attacks of these Owls. I have seen them strike down the Siberian Jay, their closest neighbour, on the wing, and more than once have I disturbed them feeding on an old Willow-Grouse, a bird half as large again as themselves. Their principal food appears to be birds, lemmings, and wood-mice; but I have often taken insects out of their stomachs. There is little difference in the plumage of the

male and female, but the latter is rather the larger; and in the breeding-season I have observed that the breast and belly of the female is strongly tinged with reddish-brown. The male takes his turn at sitting (as is the case with the Woodpecker) for I have shot both as they flew out of the hole from the eggs. The Hawk-Owl moults very early, as do many of the northern birds. Like the Siberian Jay, the old birds may be seen in deep moult, without tails, even before the young are flyers; and in both the autumnal moult is complete as soon as the young birds are full feathered. The Hawk-Owl is then in its best plumage, and its clean, pure, shiny dress at that season is very different from the dingy colouring of spring.

"The nest is always in a hole in a rotten pine or fir, sometimes at a considerable height from the ground. On June 13th, I took a clutch of the Hawk-Owl with eight eggs—probably a second clutch from a bird whose first nest had been robbed, for we seldom found fresh eggs after the second week in May, and early in June we shot young flyers. The eggs are always laid, like those of the Woodpecker, in a hole, with nothing under them but a few dry splinters and chips of the rotten or fresh wood, as the case might be. The eggs of the Hawk-Owl very often so much resemble those of the Short-eared Owl, that one might well pass for the other; but they are in general a little smaller, more elongated and pointed at the small end, of a deep dirty white. Usual size—$1\frac{1}{2}$ inches by $1\frac{1}{8}$ inches." The young, like those of many Owls, are hatched in succession.

According to the character given it by Lord Lilford the Hawk-Owl is not an amiable inmate of the aviary; some eight he received from Helsingfors were "very fearless and savage, very quarrelsome among themselves, always wide awake and ready for food, and constantly uttering a very melancholy and unpleasant cry." One of these birds, through the kindness of Lord Lilford, is now in the writer's collection, mounted in a very life-like and characteristic attitude.*

The prevailing colours of the Hawk-Owl's plumage are blackish-brown, spotted and barred with white. The head, which is large and very flat on the top, is blackish-brown, profusely speckled with small white spots; space round the eye whitish, broadly edged with blackish; either side of nape blackish, with a large central white spot; a ring of white spots across the top of the back, which is blackish, some of the feathers edged with white; tail blackish-brown, with numerous narrow bands of white, and tipped with white; patches of white on the shoulders; wings blackish, barred and blotched with white; upper part of breast almost entirely white; remaining under parts whitish, with numerous narrow bars

* Mr. Frohawk's illustration is taken from this bird.



SCOPS-OWL ♂ ⅔

of blackish-brown: tarsi densely feathered; bill pale yellow; irides bright straw-yellow; claws black. Length 15 inches to 16 inches.

Young birds resemble the old; but the plumage is more fluffy, and the various markings more faintly indicated.

Family—STRIGIDÆ.

Scops-Owl.

Scops giu, Scop.

THIS pretty little tufted Owl, the smallest species on the British list, is a regular summer visitor to the southern parts of Europe, and has been captured at large as an accidental visitor to this country about a score of times, chiefly in the southern counties, has occurred twice in Ireland, and only once in Scotland. It has occurred at all seasons of the year. As it is frequently brought over from the Continent to be sold as an aviary pet, it is probable that some of these instances may have been due to escapes. There are numerous subspecies of the Scops-Owl distributed in almost all parts of the warmer countries of the world. Although a nocturnal species this small Owl comes abroad occasionally in the bright sun. It frequents gardens, groves, and evergreen woods, and preys almost exclusively upon insects, being especially fond of locusts, and sometimes captures small birds and mice. Numbers are sold in the market at Malta, and are eaten by the natives.

This tiny Owl arrives and departs with the Swallow, and is restricted in its range to the temperate and warmer parts of Europe and North Africa. Its note is its specific name *giu*, *giu*, repeated monotonously, at intervals of two seconds, "with the regularity of a pendulum," all through the night. Lord Lilford describes it as very abundant in the south of Spain, where a few remain for the winter in Andalucia, and says:—"This species has but little fear of man, and I have several times watched one from a few yards distance, as it sat generally

tightly drawn up against a tree-trunk, sometimes with one eye closed and the other slowly winking with an irresistibly comic effect. Though this Owl, in common with almost all others, prefers the shade of thick foliage for its diurnal retreat, yet it seems perfectly indifferent even to the full power of the summer sun of Andalucia, and flies with a quick and direct undulating flight from tree to tree when disturbed in the daytime. The old olive groves of Corfu are favourite haunts of this Owl, and in their hollow trunks the nest is often to be found, formed of a very few sticks and grasses, and containing from three to five eggs. In Spain, though the olive is extremely abundant, the Scops appears to prefer hollow elms, poplars, and willows; the cork-tree is also a favourite resort." Lord Lilford adds that at Malta, at the time of the vernal migration, "these Owls are often served up for dinner at the regimental messes under various names, though not, so far as I know, the true one. My own experience is that the flesh is very good. In captivity these little birds become very tame, and are most amusing. One which I kept for a long time at Corfu preferred the Humming-bird moth, which abounded there, to any other food I could give him. I think that these Owls devour a greater weight of food for their size than any bird with which I am acquainted."

The eggs are round, smooth, without gloss, and are pure white; they are laid in May, almost exclusively in holes in trees, and measure from 1·22 to 1·17 inches, by from 1·07 to 1·04 inches.

The Scops-Owl may be stated to be an Eagle Owl in miniature. The plumage is full, and more compact on the upper parts than in any other British Owl. The facial disks and ruff are incomplete; the tarsi are of moderate length, covered with short compact feathers; toes bare; ear large, without an operculum; on the head are two tufts of short feathers; wings long; tail short, arched, and rounded. The general colour of the plumage is greyish, varied with brown and brownish buff, the feathers on the crown with a black central streak; the tufts reddish brown, with white on the inner web; back grey, feathers slightly streaked with black, and vermiculated with brown; some bold white marks on the scapulars; wings greyish brown, barred with tawny brown; tail brown, barred with rufous brown, and vermiculated with dark brown; facial disks grey, minutely spotted with brown; under parts greyish white, finely vermiculated and blotched with brown; beak black; irides yellow; claws black at tip but white at base. Length 7½ inches. There is no difference in the plumage of the sexes, but the female is slightly larger than the male. Young birds are more rufous than the adults.

The Scops-Owl can always be easily distinguished from the Little Owl by its tufts, and by its pretty vermiculated plumage.



EAGLE OWL ♀ ¼

Family—STRIGIDÆ.

EAGLE OWL.

*Bubo *maximus*, FLEMING.

WE pass from describing the smallest Owl on the British list, the tiny Scops, to the largest, the noble Eagle Owl, the name Eagle being conferred upon it because of its pre-eminence in size and strength. It is a powerful and courageous bird, inhabiting the northern and central Palæarctic region, and found throughout Europe, in the forests and mountains, from Lapland to the Mediterranean. In the British Islands it is stated to have been formerly a resident in the Orkneys, but it is now only a very rare occasional visitor to the north of Scotland, and in the English counties its occurrences have been very few, and as this grand Owl is often kept in a semi-domesticated state, most of these may have been due to escapes; it is doubtful if it has ever been obtained in Ireland. On account of the havoc wrought by it to game a price is set upon its head, and it is greatly persecuted in all the large preserved forests of central Europe, and is becoming scarce in consequence. The Eagle Owl is strictly nocturnal, hiding by day in great trees, or among the rocks, but if it flies abroad in the daytime it is not dazed by the most brilliant sunshine; it comes forth to hunt early in the evening. Its cry is a deep hoot, chiefly heard at the nesting season; some have likened its note to the distant bark of a gruff old watch dog. It nests early in the year, in February and March, generally in the forests on some lofty tree, selecting often some deserted nest of other birds, but almost invariably at a great elevation from the ground. Or else the nest is a mere hole scratched out on the ledge of a rock, or on the ground at the foot of a tree. Wolley gives a very good description of one found by him in Lapland—"When we were fairly in the cliffs we came to a point where some large bird was in the habit of sitting to tear its prey, and feathers and white feet of hares were lying about. A great Owl flew before us, showing a beautiful expanse of back and wings; and as we proceeded in the direction from which it came, another large Owl rose from the face of the cliff, flew a hundred paces forward, turned its wide face towards us, and came a short distance back. I stopped to examine it with my glass to be

* The writer refuses to continue T. Forster's absurd and libellous name *Bubo ignavus*.

quite certain it was *S. Bubo.* Satisfied on this point, we only had to walk a few paces along a ledge before the family group was in sight—two blind little puffs covered with down just tinged with yellow, and an egg with the prisoner inside uttering his series of four or five chirps through the window he had made in the shell, with a voice scarcely more feeble than that of his elder brothers. There did not seem to be much difference in the ages of the three; they were lying upon a small quantity of compressed fur, principally of rats, the remains of the castings of the parent birds, their bed nearly flat, for there was not more than two inches of soil. *Uva-ursi* and several other plants grew near; and a small Scotch fir-tree had its trunk curiously flattened to the perpendicular rock at the back; the ledge was not more than two feet wide, and terminated abruptly just beyond the nest; the rock beneath was also perpendicular. We waited at the nest a long time in the hope that the parent birds would show themselves; but it was not till we had left it that we saw them again sitting on the topmost shoots of spruce firs with their ears finely relieved against the sky; and as we were nearly in the village again they hooted with a troubled note." The eggs are usually two in number, sometimes three, but never more; they are very large, slightly oval, and of a creamy white, and measure from 2·48 to 2·18 inches, by from 2 to 1·84 inches.

The Eagle Owl is a very bold and savage bird, of powerful but noiseless flight, is afraid of nothing, and there is hardly any bird that is too large for it to fly at. It will not hesitate to attack an Eagle; and will knock down and make a meal off the Capercailzie. In Epirus Lord Lilford was convinced that the Eagle Owls preyed chiefly during the autumn and winter upon wild-fowl, which they seized as they were feeding on the open marshy lands by night. Although largely preying upon hares, rabbits, and the larger feathered game, the Eagle Owl does not disdain the smaller favourite items of an Owl's ménu, such as rats, mice, and beetles. It does well in captivity, freely nesting and rearing its young, and "if not over-fed, and allowed to take a sun-bath when so inclined," will live to a great age. In the aviaries at Lilford there was an Eagle Owl that was known to be at least seventy years old. In confinement it seems to have a noble indifference to its surroundings; when Swaysland, the well-known bird-stuffer of Brighton, had his collection of tame Owls in a lower gallery of the West Pier, the writer saw a couple of Eagle Owls sitting on their eggs in rough square boxes, as placid as domestic hens in a fowl house, in spite of the presence and passing of constant visitors. Although the Eagle Owl is a well-known bird owing to its being always included in the collections of Zoological Gardens where it may be seen sleeping in its cage with its ears erect, or else solemnly awake, and constantly

blinking and drawing the nictitating membranes over its eyes, sometimes condescending to hiss and snap its beak at the spectator, yet but little is known of its habits in its wild forest seclusions. In British Columbia its near relation, *Bubo virginianus*, when it pays a predatory visit, as it does very commonly, to the poultry yard, is accustomed to alight on the ground some twelve or fifteen paces away from its intended prey, and after gazing about for a second or so, to advance towards it by two or three long hops and pounce upon it.

The Eagle Owl varies greatly both in size and in the colour of its plumage. There appear to be two extreme forms, a grey, or north-eastern form, and a dark, rufous-brown form, common in the west and south, with intermediate forms between the two. In this fine Owl the plumage is very full and soft. The head is very large and roundish, with two elongated tufts: the ears are large, without an operculum; the facial disks are incomplete above the eyes, which are very large, the irides of a deep rich orange; the ruff is incomplete; wings long, of great breadth, and rounded; tail broad, arched, and rounded; tarsi short and strong, and with the toes densely feathered. The colour of the upper parts is reddish brown, variegated with dark brown, and with some dark orange tints; a patch of white on the throat; lower parts sandy yellow, with longitudinal blackish brown streaks, and numerous transverse, undulating lines; the tufts on the head are dark brown, barred with lighter brown; wings and tail brown, barred and vermiculated with black; feathers covering tarsi and toes rufous yellow; beak and toes dark horn colour.

The female is considerably larger than the male. Length of male 24 inches, of female 26 inches.

ORDER ACCIPITRES.

THE important Order of the Accipitres includes the remaining Raptorial birds, after the Owls, and is divided into two families, the *Vulturidæ* and the *Falconidæ*. With the *Vulturidæ*, that are distinguished by their necks being either bare or only covered with down, this work has no concern, as they are all inhabitants of warm countries, feeders upon carrion and garbage, and could not maintain an existence in the British Isles to which only one or two individuals have been drifted through some accident. The British Ornithologist who treats to-day of the *Falconidæ* has a sorrowful task, feeling that the pages he devotes to them should be edged with black, as he can only pen obituary notices of the majority, the traps, the poison, and the gun of the game preserver—to whose keepers a single Hawk existing on the properties they have the charge of would be considered a disgrace—having effectually exterminated the most interesting of the once resident species. It is but poor satisfaction to read in the admirable pages of Montagu and Macgillivray their animated descriptions of the Eagles, Harriers, Kites, and Buzzards which, in their day, were still fairly numerous as ornaments of our moors, woodlands, and mountains; the Naturalist would greatly prefer to have the opportunity of seeing these fine birds still ranging and circling in the air. There are but a few remote spots left where one or two may still maintain a precarious existence, but the Sparrow-Hawk and the Kestrel are at the present day the only two species that can be spoken of as generally common.

The *Falconidæ* differ greatly from the Owls in having their plumage hard and compact instead of being soft and downy; in their hunting by day instead of by night; while the swiftest of them capture their prey after pursuit in the air, for the most part, instead of pouncing it upon the ground. Their heads are fairly

large and round and, in the Eagles, are flattened upon the crown; their eyes are large, very keen of vision, and are protected by a superciliary ridge; the apertures of the ears are large, round, or elliptical; the beak is a perfect cutting instrument (*falx*, hence *Falconidæ*) is short, stout, compressed towards the end, curved from the base, sharp at the tip, near which on the upper mandible there is a projecting festoon or tooth; both mandibles have sharp edges; the legs are of moderate length, or, as in the *Harriers*, elongated; tarsi very muscular, sometimes feathered, as in *Aquila*, but generally bare; usually scutellate in front and behind; sometimes scaly all round. The toes are four; the first large and stout; the third longest; the second larger than the fourth, the anterior somewhat webbed at the base; all scutellate towards the end, sometimes in their whole length; padded or papillate beneath. The claws are long, tapering, and very acute, with a great range of motion, but not retractile. The wings are very large, varying much in form; being very long, or of moderate length; pointed, as in the true Falcons; or rounded, as in the Sparrow-Hawk; the tail, always of twelve feathers, is never small, but varies in shape, being even, graduated, emarginate, or forked. The majority of the Falconidæ, owing to their pointed claws, are incapable of walking upon the ground, and can only progress upon it by long hops aided by their wings. They seize their victims with their talons, thrust into them their long acuminate claws, and when of sufficiently small size carry them off to some secure retreat. The bill is not generally used for inflicting wounds, but with it they remove the hair or feathers, previously to eating the flesh, which they tear up with ease, often swallowing the bones. Like the Owls, they void the indigestible portions of their food in the form of pellets. Their prey consists of small mammals, birds, fishes, reptiles, birds' eggs, and insects, and some of them will devour carrion. Their flight is powerful, graceful, and varied; strong and swift in the Falcons; more buoyant in the Harriers; light and gliding in the Hawks; heavier in the Buzzards and Eagles; soaring in circles in the Kites. They perch with ease, and when at rest on a branch or crag keep the body nearly erect, and the neck much retracted. On a level surface, they incline the body forward, and draw up their claws.

As it would be fatal to them to moult all their feathers at once, as they are entirely dependent on obtaining their food by flight, their moult is a gradual process, feather by feather, and beginning at the end of the summer is continued until the winter. Their cries are loud and shrill, with little modulation. They pair early in the spring, forming rude nests of sticks, twigs, and other materials, lined with a little wool or grass, many of them are content to occupy the deserted nest of some other bird, or to nest upon the ground; the eggs are from two to

six or seven in number, the larger species having fewer than the smaller; they are suboval or elliptical, and in colour are generally of a whitish ground, spotted and blotched with various shades of red, and some of them are very beautiful. The young are at first covered with down, and remain in the nest until they are fully fledged. Their first plumage is generally darker than that of their parents, and the markings upon it are longitudinal instead of being transverse. The males are always smaller than the females.

Some of the *Falconidæ* haunt the moors and fens, as the Harriers; some are birds of the large Woodlands and cultivated districts, as the Kite, the Gos-Hawk, the Sparrow-Hawk, the Buzzard, the Hobby, and the Kestrel; some are denizens of mountains and bare moors, as the Eagle and the Merlin; some love the cliffs along the coast, as the Peregrine, the Osprey, and the White-tailed Eagle; they are distributed all over the country, each district having its appropriate bird.*

It must be added that all the *Falconidæ* are migratory birds, coming north in the spring to their breeding quarters, and, in the autumn, again "stretching their wings towards the south."† As soon as the young are capable of hunting for themselves the old birds drive them away, and the passage birds in the autumn are mainly composed of those of the first year. Some of the adults remain for the winter without migrating, if the district at this season continues to supply them with their food, but all the Falcons of the far north come south in attendance upon the migratory flocks of wild fowl. Buzzards congregate at the seasons of migration, and fly in large flocks at a great height in the air, whence their cry is often heard as they pass overhead among the clouds.

* This description of the *Falconidæ* is mainly taken from Macgillivray.

† Job xxxix, 26.

Family—VULTURIDÆ. *Subfamily—GYPS*

GRIFFON VULTURE.

Gyps fulvus, J. F. GMELIN.

IN the spring of 1843 an immature example of this large Vulture, common in the south of Spain, etc., was caught alive on the rocks near Cork Harbour.

Family—VULTURIDÆ. *Subfamily—NEOPHRON.*

EGYPTIAN VULTURE.

Neophron percnopterus, LINN.

THIS, a much smaller species, also common in the south of Spain and Africa, has twice been noted in England. Two were seen, both young birds, at Kilve, on the coast of West Somerset, in October, 1825, and one was obtained; they were feeding at the time on a dead sheep. Another was killed September 28th, 1868, in a farm-yard at Peldon, Essex, to which it had been attracted by the blood of some geese.

Family—FALCONIDÆ. *Genus—CIRCUS.*

THE HARRIERS.

THE Harriers are birds of singular appearance, having slight bodies, long and much rounded wings, long tails, long and slender legs, and round heads, with a distinctly indicated ruff on the lower sides of the face, and as they have also large ears and soft and rather downy plumage, they appear to form a connecting link between the Owls and Buzzards. The bill is short and attenuated, with the dorsal line sloping to beyond the cere, then decurved, the edge of the upper mandible with a slight festoon; nostrils large, ovate or oblong, with an oblique ridge; tarsi feathered on the uppermost part, scutellate before and behind; claws long, curved, and sharply pointed; irides yellow in adult males, hazel in young and females.

The Harriers are distributed all over the world, with the sole exception of the Malay Archipelago, and the extreme north and south; fifteen species are known, four only are European, and of these three occur in the British Isles; they are denizens of moors, heaths, downs, and swamps, avoiding woods. They roost and nest upon the ground. They derive their name from their harrying small birds and mammals, for which they beat low over the ground with a buoyant flight, regularly quartering it like a setter, dropping down upon their prey like an Owl. They are migratory birds, coming north to nest, and returning south in the autumn; both the Marsh- and Hen-Harriers are to be found in this country in the winter; these are birds wintering with us from further north; adults of the Hen-Harrier are more common in the British Isles during the winter months than at any other time of the year. All the Harriers are great stealers of other birds' eggs, besides being remorseless devourers of young birds. They also prey upon reptiles, insects, rats, mice, young rabbits and leverets, and upon water-fowl and young partridges and grouse. Drainage of fens, reclamation of waste grounds, railways, game-preserving, the "collector," have all been agents in their extermination as native birds, and to-day they are only known in the greater part of the kingdom as chance visitors on passage, and it is only in the most remote and wildest districts that any of them may now be successful in rearing a brood; the nest, placed upon the ground, is easily to be discovered, and when found it is thought a meritorious act both by shepherds and keepers to trample upon the



MARSH-HARRIER ♂ ⅓

eggs. The nests are constructed of sticks, stalks of plants, sedge, rush, and grass, varying in size with the situation; the eggs are bluish white, four to six in number, generally plain, but occasionally with a few rusty markings. The nestlings are at first covered with white down, and in their first year are darker in plumage than the parent birds. In captivity Lord Lilford found all the Harriers to be extremely wild and restless, requiring a considerable space for the proper exercise of their wings.

Family—FALCONIDÆ. *Genus—CIRCUS.*

MARSH-HARRIER.

Circus æruginosus, LINN.

A HUNDRED years ago the Marsh-Harrier, or, to give it its old familiar name, the Moor Buzzard, was a common English bird, frequenting and nesting on all swampy moors, and was especially abundant in the fen districts of the East of England. Col. Montagu described it as "the most common of the Falcon tribe about the sandy flats on the coast of Carmarthenshire, where they prey upon young rabbits; and we have seen no less than nine feeding at one time upon the carcase of a sheep."

In old days the Marsh-Harrier was a great pest to the keepers of rabbit-warrens, and the estuaries of most rivers were haunted by these birds where they persecuted the ducks and waders, and for this reason had the name of Duck Hawk commonly given to them. Drainage of fen lands, shooting and trapping, the destruction of their nests wherever found have combined to banish the Marsh-Harrier from our Ornis; the few noted at the present day are stragglers from the Continent, and it is extremely doubtful if in any part of the British Isles the bird can still be counted among our nesting species. Stevenson, in his "Birds of Norfolk," published in 1866, writes that in his county where they were once so abundant

that Lubbock said they might be well called the Norfolk Hawk, "their breeding grounds are confined almost entirely to such quiet and preserved localities as Ranworth, Barton, Horsey, and Hickling, where the shriek of the railway whistle has not yet scared them from their natural haunts. In the above districts a few pairs of the Marsh-Harrier, as I learn from the most reliable sources, remain with us throughout the year." But as the marsh-men shoot down every one of these birds they see, and rob their nests, it is to be feared that even in these quiet sanctuaries since these words were written the birds have well nigh disappeared. Another part of England where, perhaps, a pair or two of Marsh-Harriers may still be left to nest is the district round Wareham, in Dorsetshire, where the birds are dangerous neighbours to the Gullery of Brown-headed Gulls at Ower, robbing the eggs and devouring the young Gulls. In Scotland Mr. R. Gray states that the Marsh-Harrier (he published his Birds of the West of Scotland in 1871) was comparatively common in the district of Nether Lochaber, and also in Appin in Argyleshire; he had himself been familiar with it as an East Lothian species, having examined a number of specimens that had been shot in that county, and had noticed many years before its partiality for ducks and pigeons on the Tyne estuary. It was once common in many places in Ireland, until it had been well nigh exterminated by poison laid for it by the keepers. The Ornithologist of the present day, unless he visits one of the haunts where in former times it was most numerous, and where a chance pair may still survive, is hardly likely to encounter it anywhere in the British Isles, and must go abroad and look for it in the *marismas* of South Spain, or in the marshes of the Delta in Egypt, would he know what it is like on wing. Except in the far north the Marsh-Harrier is largely distributed over Europe in country suitable to its habits, avoiding woods and enclosed districts, and selecting moors and swamps. It extends far to the east in Asia, and is met with in Africa so far to the south as the Transvaal.

The Marsh-Harrier flies rather heavily low above the ground when hunting, pouncing down occasionally to secure some victim. The writer has encountered it when he has been after snipe and wild-fowl in North Devon and Wales, and once watched an old male fishing in some shallow pools left by the tide in the estuary of the Taw, the bird plunging every now and then heavily and awkwardly into the water. It used to be a frequent visitor to decoys for ducks, where its presence excited great alarm in the assembled fowl; its favourite food consists of the eggs and young of Coots, Moor-hens, and Wild Duck; fish, frogs, lizards, water-rats, dragon-flies, etc., also enter upon its ménu. This thief and plunderer is easily to be caught in a trap baited with an egg.

The nest is usually placed in a swamp low down among the reeds, sometimes at the foot of a dwarf willow; it is a large and loosely made structure of stalks and rushes, and is lined with grass. In the south of Europe the Marsh-Harrier begins to nest early in March, but further north not until May. Col. Montagu once took a nest that was placed in the fork of a tree. The eggs are three to six, bluish white, occasionally spotted with rust red; the writer has one in his cabinet as richly marked on the larger end as the egg of the Honey-Buzzard, the rest of the egg being pure white. This is the egg figured on plate ix, No. 295. The eggs measure from 2·08 to 1·84 inches, by from 1·58 to 1·44 inches. While the hen is sitting the male bird soars high above the nest in circles. The cry of the Marsh-Harrier is said closely to resemble the scream of the Kittiwake Gull. It roosts upon the ground, but during the day may be seen sitting on posts in the marshes, on walls, or on heaps of litter.

The general colour of the plumage of the male Marsh-Harrier is dark reddish brown; the top of the head, cheeks, and nape warm ochreous-white, closely striped with chocolate and blackish brown; back and scapulars dark chocolate, very slightly marked with dark fulvous; tail ash grey, with light yellowish buff; secondaries ashy-blue grey; primaries blackish-brown, the inner ones marked with ash-grey; chin white, breast yellowish white, marked with rusty red and dark reddish brown; rest of the under parts warm rusty red marked with chocolate brown; irides lemon-yellow; bill horn; cere and legs yellow.

An adult female, from Cambridgeshire, in the writer's collection, is light brown, with a pale yellow band across the chest; crown of head and chin pale yellow, slightly striated with dark brown and rufous; back and tail light brown, outer feathers of tail edged with pale rufous; belly and thighs dark reddish brown; some of the brown feathers on the back and shoulders with pale yellow edgings.

In young birds of the year the whole of the plumage is dark chocolate brown; the feathers tipped with lighter reddish brown; the irides then are yellowish hazel, and remain of this colour in the females of all ages.

In the second year the head, neck, chin, and throat become dull yellow; with occasionally a patch of the same colour upon the carpus, or anterior point of the wing. In this plumage the Marsh-Harrier used to be called the Harpy, and it was always more common in this country than in the full adult dress. The female is much larger than the male, measuring 23 inches in length; the male 19 to 20 inches.

Very dark, almost black, varieties of the male are frequently met with; the writer possesses one from the eastern counties that has the entire head and back a bluish black, with the underparts dark rufous.

In the Marsh-Harrier the facial disk is but slightly indicated, much less so than in the Hen-Harrier.

Family—FALCONIDÆ. *Genus—CIRCUS.*

HEN-HARRIER.

Circus cyaneus, LINN.

THE Hen-Harrier, the "'Vuzz-Kitt" of the West Country, was once a fairly common bird on all moors, heaths, and fens throughout the Kingdom; the majority seen were summer visitors, and when these departed their place would be taken by other migrants arriving from the north in the autumn and winter, so that specimens would occur all the year round. But persecution has well nigh exterminated it as a nesting species in all but a few of the wilder districts, although it has been a little more fortunate than the Marsh-Harrier, and still maintains a precarious foothold. In North Devon, on Exmoor, where the shepherds stamp on all eggs they find, in Dorsetshire, Hants, on Salisbury Plain, in Wilts., and in some of the Welsh counties, as also in some of the northern counties, throughout Scotland, in the Hebrides, Orkneys, and in places in Ireland, the Hen-Harrier continues to nest sparingly, but every year witnesses a diminution in its numbers. In the Norfolk Broad district, it was regarded as the rarest of the three English Harriers by Stevenson, who states that it seldom nested and had, at the time he wrote his account of the Birds of Norfolk, "ceased to nest." The adult male was at all times rare, and was chiefly to be seen in severe winters, when a few crossed over from the Continent. The writer was very familiar with the Hen-Harrier some years ago in North Devon where, in the autumn, young birds were common enough on the marshes skirting the Taw estuary, and also in Pembrokeshire. In the last county it was frequently met with on the



HEN HARRIER ♂ ♀ ♪

hills and moors when he was in pursuit of Snipe; one day he saw three old males beating a swamp in line. Only too frequently decaying bodies would be seen suspended in keepers' larders, and nests that had been destroyed would be reported. The flight of the Hen-Harrier is usually low over the ground, sometimes the bird will hover in the air like a Kestrel, or skim swiftly like a Grouse. When suddenly come upon and disturbed in eating its prey upon the ground it makes off with an awkward, wavering flight, but, on occasion, it can acquit itself very respectably on wing, as was once witnessed by the writer on the Braunton Burrows, in North Devon, when an old male that was chased and stooped at by a Peregrine Falcon made a good ringing flight, mounting high into the air, successfully avoiding and shaking off its formidable enemy. The food of the Hen-Harrier consists of frogs, snakes, rats, mice, voles, rabbits, leverets, small birds, young birds, and birds' eggs, with an occasional Grouse or Partridge; it takes its name from its harrying the poultry-yard, but as it is entirely a bird of wild open moors and fens, instances of its attacking and carrying off chickens cannot have been frequent, and it may have been confounded with the Kite. The Hen-Harrier was plentiful enough in Col. Montagu's time, who states that he frequently saw three or four on wing together, and was the first naturalist to point out that the "Ring-tail," formerly considered a distinct species, was only the female of the Hen-Harrier; this he conclusively proved by rearing a brood, taken from the nest in their white down, until they had assumed their full plumage, which they did in the autumn of their second year.*

This Harrier ranges further to the north than the other two Harriers on the English list, having been found by Seebohm on the *tundras* of North Russia and Siberia, more than a hundred miles above the Arctic circle. On the Continent it is a summer visitor, arriving towards the end of March from the south, nesting in Holland, Jutland, Norway, Lapland, northern and central Russia, Poland, north and central Asia, and the north island of Japan. In the southern countries of Europe it is chiefly seen on passage; it winters in Africa, going as far south as Abyssinia; many also winter in the southern countries bordering the Mediterranean.

The old male Hen-Harrier, in his blue-grey back and white under parts, not a little resembles a Gull as he flies over the ground with a decidedly gullish flight. One winter the writer spent on Lundy Island during a long-continued frost, when the ground was deeply covered with snow, an old male was daily seen feeding upon the starving Larks and Fieldfares.

The nest, placed on the ground on a moor sometime in May, generally among

* However, the Rev. H. A. Macpherson claims that Dr. Heysham, of Carlisle, made the discovery prior to Col. Montagu.

the heather, varies in size and material, Seebohm states, with the locality. "Harvie Brown describes one on the bare hill-side as merely consisting of a few loosely arranged heather-stems with a shallow depression in the centre lined with wiry dry grass broken into small pieces. Another, placed in deep heather, was more than a foot high, and composed of stout rank stems and roots of heather." Sometimes the nest is placed in a corn-field, at other times in a swamp, and in this case it is built up with stalks and sedge until it is a foot or eighteen inches above the wet surface. The eggs are from four to six, bluish white, occasionally slightly marked with rusty red; they measure from 1·8 to 1·65 inches in length, by from 1·5 to 1·65 inches in breadth.

The adult male is blue-grey upon the upper parts; rump white; primaries black; central tail feathers light blue-grey, outer ones whitish, faintly barred with brown; chin and throat blue-grey, gradually fading into white on the under parts; cere, irides, and legs pale yellow; claws black; beak dark horn colour.

The adult female has the forehead and an irregular streak over the eye buff; a dark patch of brownish red on either side of the eye; chin buffy-white; head and neck dark umber-brown, striped and spotted with rufous-buff and buffy-white; upper parts generally dark brown, less profusely marked with warm buff; upper tail-coverts white, with a few rufous dots; central tail-feathers dark brown, outer ones pale buff, all with five dark bars, and tipped with pale buff; under parts buff, striped with dull brown and reddish brown; under surface of wings white, barred with blackish-grey; irides brown; cere and legs yellow; claws black; beak blackish horn. Length of male 19 inches; of female 21 inches.

Young birds resemble the adult female, but are much more rufous, especially on the under parts, which are warm rufous buff, striped with reddish brown, and the tail is broadly tipped with pale rufous.

The facial disk and ruff in the Hen-Harriers are well-defined, being blue-grey in the male, and in the female brownish-white, the ruff closely striped with dark umber brown.



MONTAGU'S HARRIER ♂ ⅓ AND ♀

Family—FALCONIDÆ.

MONTAGU'S HARRIER.

Circus cineraceus, MONTAGU.

THIS beautiful species was first distinguished from the Hen-Harrier by Col. Montagu at the commencement of the present century, when he was residing at Kingsbridge, in South Devon, and has received its name from him in consequence; he himself called it the Ash-coloured Falcon. It is a somewhat smaller bird than the Hen-Harrier, and has longer wings that reach when closed almost to the extremity of the tail, whereas in the Hen-Harrier the wings do not extend within some two inches of the end of the tail when folded. The adult male of Montagu's Harrier may also be recognised by the much darker lead-blue mantle, by the chestnut stripes of the under wing-coverts, the two prominent black bands on the secondaries, and the chestnut streaks on the breast, flanks, and thighs. The facial disk and ruff are almost obsolete in the smaller species.

Montagu's Harrier possesses the distinction of being the commonest of the three English Harriers at the present day, and it was probably always more numerous in the south of England than either the Marsh or the Hen-Harrier. If it could escape molestation it would be a regular summer visitor to the downs and fens of our southern counties. In the Lizard district of Cornwall, especially on the Goonhilly downs, it is still quite common; it is often seen in Devon and Cornwall; is still common on the heaths around Poole and Wareham, in Dorset, and on those round Christchurch, in Hants, and is frequently seen on the Wiltshire downs, and there is hardly a county in England or Wales from which the nest has not been reported. It does not range far to the north, and is very rare in the south, and unknown in the north of Scotland. The nest has been found in the northern counties of England, but not so frequently as in the south. This Harrier never winters in the British Isles, leaving us in September; Col. Montagu had never heard of one after October. In the Broad district of Norfolk Montagu's Harrier used to be quite a common and well-known bird before the fens had been so largely reclaimed and drained; there may still be an occasional nest in protected and quiet places. But the guns of keepers and of marshmen are always ready to be directed against the poor birds as soon as they are observed;

they are easily to be shot, and the nest, placed upon the ground, can be discovered without difficulty. One marshman boasted that his gun had accounted for eight in one season. The males, known to the natives of the Broads as the Blue Jacket, arrived about a fortnight before the females, at the end of April or beginning of May, and might have been seen in old days beating over the fens with a buoyant tern-like flight, seeking their prey which comprised snakes, lizards, large insects, such as dragon-flies, mice, frogs, young birds, and birds' eggs, and occasionally young rabbits and leverets. The cry of this Harrier is stated to resemble the scream of the Kittiwake. The nest is smaller than that of the Hen-Harrier, is composed of stalks of plants, a few sticks, and grass, and is lined with fine grass. It has been found in a clover-field, or among furze, and in the fens; Emerson, in his account of the Birds of the Norfolk Broad-land, writes:—"If the marsh be moist, the flat nest, smaller than a Marsh-Harrier's, is raised from seven to fifteen inches from the marsh bottom; on the other hand, if the marsh be dry, the nest does not rise much above the ground. And the materials vary according to the marsh crops growing alongside—old sallow sticks, grass, soft rushes, sedge, and occasionally a few of their own feathers being the chief stuffs employed. And directly the first egg is laid on the reedy boat—floating as it were on the green sea—the hen begins to sit, and closely she sits, never leaving the nest for long. Indeed, many fenmen have nearly caught her with their hands whilst sitting, so devoted is she to her four bluish-white eggs."

"In early spring, perhaps some fine morning you will not see a cock Montagu in the sky, when suddenly a brown hen flies with her heavier beat in from the sea, and then the blue air resounds with a far-reaching Kittiwake-like shriek. The *shaling cock has seen her, and flies down like lightning to court her, and perhaps to fight another cock, who has been waiting for the hens as well as he, for there are generally more cocks come over than hens; and they fight fiercely, as the fenmen bear testimony, though I have never seen one of these love-combats, but fenmen tell me they have often seen them fighting and shrieking in the air at the pairing season."

The writer possesses examples of Montagu's Harrier from Kent, Cornwall, and Dorsetshire, and has himself seen the birds at large on Exmoor in the early summer. In North Devon young birds in the dark red plumage used to be far from uncommon in August and September around Barnstaple, and were not unfrequently shot and brought to the bird-stuffer in that town. A brood of three young birds in white down was taken from a nest just outside Poole, in Dorsetshire, in the summer of 1892; these the writer has, together with the cock bird,

* Query—soaring.

shot in the act of feeding the young with a half-grown Partridge. Black varieties of Montagu's Harrier, chiefly of the male bird, are far from uncommon, and have been obtained in Norfolk, in South Devon, in Dorset, and in Hants. Montagu's Harrier, is very rare in Ireland, only three occurrences having been recorded.

The eggs are from four to six in number, are bluish-white, sometimes with a few rusty spots; they measure 1·7 inches by 1·3 inches. The hen begins to sit directly the first egg is laid, and while she is sitting she is fed by the cock, and flies from the nest to meet him, catching the food he drops her in the air.

The range of Montagu's Harrier extends over the central countries of Europe and Asia; large flocks have been noticed assembling at the time of migration in the autumn in the south of France. In the winter it goes so far south as the Cape in Africa, but numbers winter throughout that continent in Algeria, Egypt, Abyssinia, etc.

The adult male is ashy-blue on the head, neck, back, and upper wing-coverts, but is of a darker colour on the back than the male Hen-Harrier; the upper tail-coverts are white at the base, bluish-ash towards the tip; the tail is like the back, except the two outer rectrices on either side which are paler, and barred with pale ferruginous; the two next barred with darker grey, tinged with reddish; primaries black; secondaries short, coloured like the back, with two hidden and one conspicuous blackish bars; under parts below the breast greyish-white, striped with chestnut red; bill blackish horn; cere, irides, and legs yellow.

The adult female is of a warm brown, varied with light rusty rufous on the upper parts; under parts warm pale ochreous, striped with rusty brown; upper tail-coverts white, striped and blotched at the tip with rufous; central rectrices greyish-brown, barred with blackish-brown; outer rectrices white or greyish-white tinged with rufous and barred with dark reddish brown.

Length of male 17 inches; of female 19 inches.

The young are chocolate-brown above, and rufous-ochreous on the under parts. Howard Saunders states that in any stage of plumage Montagu's Harrier may be distinguished from the Hen Harrier by the outer web of its fifth primary having *no notch* or *emargination*.

Family—FALCONIDÆ. *Subfamily—BUTEO.*

THE BUZZARDS.

THE Buzzards are for the most part heavy and rather awkward looking birds of large size that are dispersed all over the world, except in the Australian region. Eighteen species are known, three only belonging to the Western Palæarctic region, and of these three, two, the Common Buzzard, and the Rough-legged Buzzard—the first a resident, the second an autumn visitor—come upon the British list. Macgillivray writes that he knows of no distinction between the Buzzards and the Eagles; the Buzzards may be regarded as small Eagles, or the Eagles as large Buzzards, and the Rough-legged Buzzard—Seebohm calls it the Buzzard-Eagle—he considers the connecting link between the two.

The Buzzards and Eagles are alike sluggish, spiritless birds; they capture their prey by dropping upon it when on the ground, rarely following it in the air; they are altogether wanting in the dash and courage of the true Falcons; they spend hours together perched in a seeming lethargic state upon trees or rocks, and they are not unwilling to feed on carrion. They are powerful on wing, and, although they hunt for their prey by flying heavily low over the ground, yet they all delight in soaring in circles high in the air. The Buzzards chiefly prey upon small mammals, reptiles, and insects; their cry is a loud mewing call; they frequent large woodlands, equally with open moors, and the sea-coasts; they nest both in trees, and upon ledges of the rocks; they are migratory; and their plumage is soft and full, and generally with a certain amount of gloss upon the feathers.



BUZZARD ♂ ¼ AND DARK FORM OF ♀

Family—FALCONIDÆ.

BUZZARD.

Buteo vulgaris, LEACH.

THE Common Buzzard, the type of the *genus* Buteo, no longer merits its old name in England, for it is only in the extreme west, in parts of Wales, in the Lake District, in Scotland, and in Ireland, that the Buzzard may still be met with, a few having survived the ceaseless persecution waged against all the Accipitrine birds. On the coasts of Devon, especially on the northern, on Exmoor, on the rocky coasts of Wales, there are still a few pairs nesting in the cliffs, but very few compared to what there were fifty years ago, when in the Valley of Rocks, at Lynton, six or seven might have been seen soaring in the air at once, and when the bird was well-known to warreners by the name of the Black Eagle, and was trapped by them in numbers when it came after the young rabbits. The number of places named after the Common Buzzard * in Pembrokeshire witness to its former abundance in that part of Wales. The writer has very often encountered the Buzzard on Dartmoor and Exmoor, and also on moors in South Wales, and might have shot many had he cared to do so, the birds often foolishly or through curiosity, flying up to the gun. In most parts of England the Buzzard is only known at the present day as an occasional visitor at the seasons of migration; many of the old woodlands and crags where it formerly nested now know it no more. As a rule the Buzzard is a sluggish bird, remaining perched and motionless for hours at a time, and when moved flying off in a heavy, sluggish fashion, but at the nesting time it indulges in soaring flights, high above the nest, that are maintained for a considerable time. At their migrations Buzzards travel in large flocks, very high in the air, and can only be recognized by their cries as they pass over. The plumage is full and soft, and there are great variations in its colour; very dark, almost black, specimens are met with; others are brown; others ginger coloured and pale rufous; others partially white. Many years ago the writer saw a perfect albino that had been trapped on Exmoor, and sent into Barnstaple alive and perfectly uninjured, "to be killed and stuffed"!

* Bwncath.

Very anxious to possess this beautiful bird as a pet he offered a high price for it—Buzzards are easily tamed, and become very docile in captivity—but it was not to be sold, and some time later he saw it mounted, a sad caricature of what it was when he had seen it last.

The Buzzard nests at the end of March, or in April or May; the nest is composed of sticks, lined with leaves and grass, and is usually placed upon the ledge of a cliff, but in wooded districts on a tree, where built in a fork it is a large structure. Seebohm states that in the forests of Central Germany, where it is the most abundant of all the *Falconidæ*, the nests are generally placed in beech and oak trees,; they measure from one and a half to two feet in diameter, and, if in a fork of the tree, are nearly as high. The foundation is of large twigs, finished at the top with slender twigs. The nest is very flat, the hollow in the middle containing the eggs being about the size and depth of a soup-plate. The final lining is fresh green leaves, generally beech, but, in one nest, although it was in a beech tree, the lining was of green larch twigs. This lining is probably often renewed. Many of the nests examined by Seebohm contained field-mice that had been brought by the old birds to the young; remains of birds were never noted. The nests were high up, always from fifty to ninety feet above the ground, and the birds returned to the same nest year after year. When the sitting bird is on the nest she sits head to wind, and flies off head to wind, wheeling round overhead with a melancholy cry. The Buzzard is said to breed in its first spring in immature plumage. This may be the rule with all the Buzzards: the Honey-Buzzard, a very aberrant type certainly, nests before it has attained its full dress. In the great forests in Scotland the Buzzard usually nests in some tall fir. A nest very neatly constructed of sticks the writer looked into on a cliff on Ramsey Island was closely lined with fine grass; another he examined in a small cave on the North Devon coast was placed upon a ledge, and was very roughly built of stalks and grass. When turning the corner of a cliff in North Somerset, the writer one day came close upon a Raven that at his approach dropped an egg it had in its bill; it proved a fresh and well marked Buzzard's egg. Sometimes the nests of the Buzzard are lined with the Eagles' favourite grass, varieties of *Luzula*. The number of eggs varies from two to four, three being the usual number in a clutch. They differ greatly in size, shape, and colour of their markings, being oval, elongate, and more rarely elliptical. In size they measure from two and a quarter to two inches; in length, by from 1·9 to 1·65 inches in breadth. In the writer's cabinet the Welsh eggs of the Buzzard are larger than some received from Germany, but are less richly marked. (The egg No. 303, in Plate ix, is from one taken on Ramsey Island). Their ground

colour is white, or greenish-white, marked sparingly with reddish-brown and violet shell markings; when held up to the light the shell looks green. Some are almost without any markings—in every clutch it is common to find one egg [illegible] marked and a little smaller than the other eggs—others are richly covered with large and bold splashes of red; others have the red blotches forming a complete zone round the larger end; while others are freckled over with small spots of rusty red. This description would suffice for the eggs of almost all the Buzzards and Kites which, in their varieties, so closely approach one another that, if large series of each species should be mingled together, it would be quite impossible to separate them, and to assign them to their proper owners, unless the eggs had been previously marked.

The Buzzard feeds upon young rabbits, field-mice, rats, moles, earth-worms, beetles, frogs, glow-worms, lizards, snakes, and an occasional small bird picked up off the ground; the crop of one examined by Cecil Smith was found full of earwigs. When pressed by hunger Buzzards will also devour berries. The cry of the Buzzard has been compared to the mewing of a cat. As has already been stated, Buzzards do very well in confinement, but they require plenty of water to bathe in, and fur, in the shape of rats, mice, rabbits, etc., must be given with their food. As an instance of their domesticity, their fondness for rearing young birds may be mentioned; in the first volume of the first edition of Yarrell's British Birds, at page eighty, there is a vignette representing a Buzzard taking charge of a brood of chickens. This actually occurred at the Chequers Inn, at Uxbridge, where a hen Buzzard hatched and brought up a brood of chickens for several years in succession. Buzzards will live a number of years if well cared for; in his beautiful Coloured Plates of British Birds, Lord Lilford gives the portrait of a Buzzard that was then alive in his aviaries, a very dark bird with a purple bloom upon its plumage, that had been taken more than twenty years before from a nest in Cornwall.

The Common Buzzard is generally distributed over Central and Western Europe. It is not found in high latitudes, its northern breeding limit, according to Saunders, being about lat. 66° in Sweden. In the east of Europe its place is taken by an allied species, *Buteo desertorum*. It is found in the Canaries and Madeira, "while the Azores owe their name to its abundance in that group when discovered by the Portugese."

In the adult male all the upper parts are dark brown, the feathers of the back having a slight gloss and some of them paler edgings; on the forehead and nape are some white feathers; wings blackish brown; tail dark brown, with ten or twelve lighter bars; under parts yellowish-white, with longitudinal marks and

bars of brown; tarsi bare of feathers on their lower half, and yellow; claws black; irides yellowish-brown; dark hazel in the young; cere yellow; beak blackish horn, lighter at the base. Females have more white upon the under parts; and have their upper parts lighter in colour. Young birds resemble the females, but have rufous edgings to their feathers. The variations in plumage are numerous, and seem to be independent of age and sex. Length of male 20 inches; of female, 22 inches.

Family—FALCONIDÆ.

ROUGH-LEGGED BUZZARD.

Buteo lagopus, GMEL.

THE Rough-legged Buzzard, receiving its name from its tarsi being feathered on three sides down to the toes, is an irregular autumn visitor to this country, its home being the northern parts of Europe and Asia. Its arrivals mainly depend upon the lemmings; when those little animals are abundant in Norway some of the Rough-legged Buzzards that had congregated to feast upon them continue their flight westwards, and reach the eastern counties of England and Scotland; a few of them penetrate as far as the south-western counties, and one or two reach Ireland, where this species has been seldom recorded. Most that visit this country are young birds; Dresser states that he has never seen a British-killed example of an adult, and Stevenson knew of only two or three in Norfolk. Sweden and Norway appear to be the favourite habitat of this Buzzard on the Continent, but it is widely dispersed over the whole of Arctic Europe and Asia, migrating south in the autumn. In its habits, according to Seebohm, it closely resembles the Eagle, and he calls it the "Rough-legged Buzzard-Eagle;" it is not fond of woods like the Common Buzzard, preferring



ROUGH-LEGGED BUZZARD ♂ ♀

mountains and wastes, over which it roams with a more powerful flight than that of the other species, preying upon hares, rabbits, mice, lemmings, moles, frogs, lizards, etc. It glides along "Eagle-like, with out-spread wings and tail, surveying the ground below. When pressed by hunger it will often feed on carrion, like the Eagles; but it does not appear to prey much on birds, unless it discovers them wounded and comparatively helpless." It breeds in high cliffs, in places that are usually inaccessible, the female sitting very close, and being hard to dislodge from the nest; this is a large structure built up of branches of birch or juniper, and lined with grass; sometimes the nest is placed in a tree. The eggs are slightly larger than those of the Common Buzzard, and are laid in May; they are occasionally very handsomely marked with blotches of rich red, but the more usual type is a dull white all over with but few markings. Many varieties occur as is the rule with the eggs of all the Buzzard family; the clutch is usually three in number, the eggs measuring from 2·25 to 2·1 inches, by from 1·8 to 1·65 inches.

When on wing the Rough-legged Buzzard can be easily recognized by the white on the tail. In this species the usual rule for the colouring of the plumage in the *Falconidæ*—that the young birds are dark and the adults much lighter in colour—is reversed, as the adults are dark, and the immature birds much lighter. However, another canon as to plumage is maintained, for the young birds have the longitudinal dark markings, instead of transverse, on their lower parts, which characterize the young of the Accipitres.

The adult male has the head creamy white, striated with dark brown and rufous; upper parts very dark brown, blotched and barred with dull white and rufous; basal two-thirds of the tail white, remainder greyish, tinged with rufous; a very broad subterminal dark band, and three or four other dark broad bands; buffish white at the tip; lower parts creamy white, spotted and barred with brown and rufous; a band of white across the lower breast, sparingly barred with brown; flanks boldly barred with blackish; thighs rufous, broadly barred with brown; bill blackish horn, bluish at the base; irides brown; feet and cere yellow. The sexes differ only in size, the female being largest. Length—male, 23 inches; female, 26 inches. Younger birds have their heads almost pure creamy white, with more white on the throat and chest; their upper parts are dark brown, less margined with white than in adults; under parts with longitudinal streaks of brown; and a broad band of uniform dark brown on the abdomen.

The Rough-legged Buzzard is also subject to considerable variations in plumage; melanisms, however, appear to be rare. In the winter of 1876, when a large flight of these Buzzards visited this country, a very dark bird was trapped

in North Devon, and came into the writer's possession. He at first considered it an example of the allied American *Archibuteo Sancti Johannis*, but Mr. J. H. Gurney examined it, and pronounced it a variety of *Buteo lagopus*, writing "Your Buzzard is a splendid specimen, and I believe very nearly, if not quite, unique." This bird is black all over, with a purplish sheen upon the feathers of the back, and has been well figured by Keulemans in the "Birds of Devon."

One or two instances have been reported of the Rough-legged Buzzard having nested in the British Isles, but they are regarded with considerable scepticism by competent ornithologists. The keeper of Sir J. B. V. Johnstone reported that a pair nested for many years (from about 1836) on the ground among the heather in the moor-dells, near Ash-Hay Gill, Whisperdale, about three miles from Hackness, in Yorkshire: "there was no mistake, as the birds were feathered down to the toe-ends," and were only seen at the nesting season. But it is quite contrary to the habits of this species, as Saunders points out, to nest upon the ground. Next, Thomas Edwards, of Banff, stated that nestlings had been taken from a wood in his neighbourhood, in 1864. Then, the Rev. A. C. Smith, in his Birds of Wilts., writes that in 1862 "a pair succeeded in hatching out five young ones near Tisbury." Some of these were stuffed, but it does not appear that they have ever been satisfactorily identified, and in all three of the instances given it is most probable there was some mistake.

The plaintive cry of the Rough-legged Buzzard has also, like that of the Common Buzzard, been compared to the mewing of a cat.

Family—FALCONIDÆ.

THE EAGLES.

THE Eagles on the British list comprise representatives of the genera *Aquila* and *Haliaëtus*. Dresser states that there are twelve species known of *Aquila*, the true Eagles, to be readily distinguished by their feathered tarsi; eight are found in the western Palæarctic Region, two of these, the Golden Eagle, still resident in Scotland, and the Spotted Eagle, a rare occasional visitor to this country from the Continent, will have to be described. Of the genus *Haliaëtus*, the fish-taking Eagles, seven species are known; two only belong to the Western Palæarctic Region, and but one of them, the White-tailed Eagle, once a common resident on the wilder coasts of Ireland and Scotland, but now almost exterminated, belongs to the British Ornis. In *Haliaëtus* the tarsi are bare of feathers.

The Eagles are powerfully built, compact, broad-shouldered birds, with short necks, having the head round and much flattened on the top; with strong beaks, either a little shorter than, or about the length of the head, decurved at the end, the upper mandible with a slight festoon; wings very long, the fourth quill the longest; tail rather long and rounded; very muscular thighs and legs, with very stout toes, covered with round scales, and scutellated towards the end; strong, curved, and very acute claws. They chiefly inhabit mountains, forests, and wastes; the fishing Eagles are not found far from the sea, or from large inland lakes and rivers; their flight, like that of the Buzzards, is generally heavy, and not far above the ground, when they are searching for their prey, which they pounce upon, not often pursuing it in the air; they are fond of soaring in circles at a great height, remaining a long time on wing. They nest early in the year on crags or trees, building enormous nests of sticks, lined with grass. The Eagles do not possess the nobility ascribed to them by the fancy of poets, being of little courage, rarely attacking any other bird that would offer resistance, content to feed on defenceless mammals, and not unseldom upon carrion.

Family—FALCONIDÆ.

SPOTTED EAGLE.

Aquila nævia, GMEL.

TEN examples of this small Eagle which, in its spotted plumage, is the immature form of a reddish-brown bird resembling a Golden Eagle in miniature, and is a straggler to this country from Central and Southern Europe, have been recorded, and others may yet be expected to visit us, getting mingled with autumn migrants. Two were shot near Youghal, in Ireland, in January, 1845; two were obtained in Cornwall, the first, on 4th December, 1860, was shot in Hawk's Wood, the property of Francis Rodd, Esq., of Trebartha, and was for a long time in the fine collection of British Birds formed by his uncle, Mr. E. H. Rodd, of Penzance; the second was shot in November, 1861, in the parish of St. Mawgan, near St. Columb, and was gorged with horse-flesh when killed; it was a beautiful specimen, and was placed in the Truro Museum. Another, at Somerley, Hants, December 28th, 1861. One was picked up dead on Walney Island, Lancashire, in 1875; one was obtained in Northumberland, October 31st, 1885; while in the autumn of 1891, a small flock appears to have reached the south-eastern counties, out of which two were shot, and one secured alive. Besides these, an Eagle, shot on the cliffs of Lundy Island, by Mr. S. D. B. Heaven, in the winter of 1858, as it rose off a rabbit it was devouring, and which fell into the sea, was believed to be an example of the Spotted Eagle from a few of the larger feathers that were recovered.

To give fuller particulars of the most recent visitation:—On October 29th, 1891, a farm labourer, when working in a field at Elmstead, near Colchester, saw a large bird alight that allowed him to capture it, that proved to be a young Spotted Eagle, in an exhausted condition. This bird subsequently passed, still alive, into the possession of the Hon. Walter Rothschild, of Tring, who permitted Lord Lilford to have a drawing made from it by Mr. Thorburn for his Coloured Plates of British Birds. Another, shot on the Sudbourne Hall estate, near Wickham Market, Suffolk, November 4th, 1891, a young male, was sent to Messrs. Pratt & Sons, the well-known bird-stuffers, of Brighton, and was admirably mounted by them. On dissection the remains of a water-rat and a Partridge were found



SPOTTED EAGLE ♂ ♀

in its stomach; it weighed three and a half pounds. The writer saw and examined this beautiful specimen in Messrs. Pratts' shop; it was exactly similar in plumage to the two obtained in Cornwall which he had also seen, and is also figured by Mr. Thorburn in Lord Lilford's book. Although the two young birds of which the portraits are given by Lord Lilford are of about the same age, they differ considerably in plumage; the Colchester bird being much darker, and with fewer of the light spots than the Sudbourne specimen, which Lord Lilford states is the finest example of the spotted stage of plumage that he had ever seen. But he adds that the third Eastern Counties' specimen, which was shot at Leigh, near Southend, in Essex, November 3rd, 1891, and of which his artist, Mr. Thorburn, also made a drawing, was very nearly as beautiful. Ornithologists are* deeply indebted to Lord Lilford for the fine series of portraits of the Spotted Eagle, for besides the two young birds already mentioned, he has given a very perfect picture of an adult taken from a living example in his aviaries. This beautiful portrait well bears out the description given above of the adult as greatly resembling the red-brown plumage of the Golden Eagle.

There would appear to be two races of the Spotted Eagle, a larger and a smaller, and it is the smaller race that has supplied the birds which have reached this country. Lord Lilford writes that he became very well acquainted with the Spotted Eagle in his shooting expeditions in Epirus and Albania, in 1856, 1857, and 1858, and found it very abundant in the winter months, "in fact it might fairly be called *the* Eagle of Epirus, although by no means the only representative of the genus *Aquila* therein. The favourite resorts of the Spotted Eagle are marshy but well wooded plains, and in my experience almost every clump of high trees on our favourite shooting-grounds was tenanted by one or more of these birds from October till March or April. In general habits I could perceive but little difference between this Eagle and the Common Buzzard, except that the former birds very frequently followed us, or kept flying from tree to tree upon our flanks, as we tramped the country with our guns, but I must admit that I never saw a Spotted Eagle in pursuit of any bird, even of a wounded one. My impression is that, during the winter months, these Eagles feed principally upon small mammalia and marsh-frequenting birds that they can take upon the ground, such as Waterhens and Rails, and I can vouch for the fact that, in springs at all events in European Turkey, frogs and small snakes form their staple diet. The usual cry of this Eagle is a shrill frequently repeated double note, but I have occasionally heard them utter a long scream. To those who are not well acquainted with this species, I may state,

* Especially as some confusion had existed concerning the Spotted Eagles.

roughly speaking, that the spots are lost with advancing years, and that the plumage of adults is of a more or less uniform dark brown. I have kept several Spotted Eagles in captivity at Lilford, and find them very peaceable and friendly *inter se*." The Spotted Eagle is known to feed also upon various insects, such as grasshoppers and locusts, and upon carrion.

According to Seebohm, the smaller, or western, form of the Spotted Eagle ranges from Northern Germany, Pomerania, and the Baltic Provinces of Russia, through Poland to the Caucasus; while the larger, or eastern form is found across Asia Minor and Central Asia as far as India; it also occurs in Turkey, Italy, and rarely in Spain. In winter both forms migrate to the south so far as Abyssinia.

The Spotted Eagle nests early in May, building a large flat structure of sticks almost invariably in a tree, and lining the nest with fresh twigs, leaves, or grass. The eggs are generally two, rarely three, in number, some the writer has from Mark, in Brandenburg, exactly resemble those of the Rough-legged Buzzard, but are much larger in size; Seebohm calls them miniatures of those of the Golden Eagle; they measure from 2·65 to 2·3 inches, by from 2·15 to 2·0 inches; some of them are very handsomely marked. The larger eggs of the Steppe Eagle, *Aquila nipalensis*, have sometimes done duty in collections for the eggs of the Spotted Eagle.

In the Spotted Eagle stage, that is in the plumage of the first year, the whole of the upper parts are dark purplish brown, the scapulars, wing-coverts, and innermost secondaries, have a terminal yellowish-white spot; the spots on the wing-coverts being small on the top of the wing and increasing in size until the lower feathers are broadly tipped with whitish; on the nape the feathers are elongated, and some of them are tipped with fulvous; tail and primaries dark purplish brown; bill bluish horn at the base, dark horn at the tip; irides hazel; cere and feet yellow; claws dark horn; under parts brown, streaked with rufous; thighs covered on the outside with yellowish feathers, streaked on the top with rufous brown; on the inside dark purplish brown; tail and secondaries tipped with greyish.

The bird in the fourth year figured by Lord Lilford is a rufous brown all over, some tawny feathers on the nape, back, secondaries, primaries, and tail, darker brown with a purplish reflection, some of the lower wing-coverts have small spots of yellowish white on their tips; under parts and thighs tawny brown.

The length of the male Spotted Eagle is about two feet, the female is slightly larger.



GOLDEN EAGLE ♂ ⅛

Family—FALCONIDÆ.

GOLDEN EAGLE.

Aquila chrysaëtus, LINN.

AT the present day this fine Eagle, the Black Eagle of the Scotch Highlands, (as also of many other parts of the world), that makes its home in almost all the mountainous regions of the Old World and in some of the New, is only to be found as a resident in a few remote places in the Western Highlands, in the Outer Hebrides, especially the islands of Lewis and Harris, while one or two eyries may still be left in the west of Ireland. It was being rapidly exterminated by shepherds, game-preservers, and "collectors," included also, and paid for whenever slaughtered, in the proscribed list of vermin, until a few of the Scotch land-owners resolved to protect it, and on their estates it is said to be recovering its numbers. Two centuries ago the Golden Eagle was still nesting on Snowdon, in North Wales, and on the peaks of Derbyshire; and within the last hundred years there were eyries in the Lake District, and on the Cheviots. Howard Saunders was informed by Mr. R. Service that, across the Border, there were eyries up to 1833 on the Moffat Hills, and for some years after 1850 in Ayrshire, Dumfries, and Galloway. In the Scotch Lowlands the Golden Eagle is now only known as a visitor in autumn. There are only a few instances of its occurrence in the southern counties of England, and some of these may refer to immature examples of the White-tailed Eagle which have been mistaken for it; yet the differences in the legs and feet of the two birds should prevent this confusion.

In 1840, the year in which Professor William Macgillivray, the distinguished naturalist of Aberdeen, published his valuable account of the British Birds, the Golden Eagle was still fairly common in the Scotch Highlands, and one of the best accounts of its habits is to be read in his pages. What an admirable word-picture is the following, inspired by a Golden Eagle seen near the wild peaks of Lochnagar! "See how the sunshine brightens the yellow tint of his head and neck, until it shines almost like gold! There he stands nearly erect, with his tail depressed, his large wings half raised by his side, his neck stretched out, and his eye glistening as he glances around. Like other robbers of the desert he has a noble aspect, an imperative mien, a look of proud defiance; but his nobility has

a dash of clownishness, and his falconship a vulturine tinge. Still, he is a noble bird, powerful, independent, proud, and ferocious, regardless of the weal or woe of others, and intent solely on the gratification of his own appetite; without generosity, without honour, bold against the defenceless, but ever ready to sneak from danger. Such is his nobility, about which men have so raved! Suddenly he raises his wings, for he has heard the whistle of the shepherd in the corrie, and bending forward he springs into the air. Hardly do those vigorous flaps serve at first to prevent his descent; but now, curving upwards, he glides majestically along. As he passes the corner of that buttressed and battlemented crag, forth rush two Ravens from their nest, croaking fiercely. While one flies above him the other steals beneath, and they essay to strike him, but dare not, for they have an instinctive knowledge of the power of his grasp, and after following him a little way they return to their home, vainly exulting in the thought of having driven him from their neighbourhood. Bent on a far journey he advances in a direct course, flapping his great wings at regular intervals, then shooting along without seeming to move them. In ten minutes he has progressed three miles, although he is in no haste, and now disappears behind the shoulder of the hill. But we may follow him in imagination, for, his habits being well known to us, we may be allowed the ornithological licence of tracing them in continuance. Homeward bound, his own wants satisfied, he knows that his young must be supplied with food.

"Over the moors he sweeps, at the height of two or three hundred feet, bending his course to either side, his wings wide-spread, his neck and feet retracted, now beating the air, and again sailing smoothly along. Suddenly he stops, poises himself for a moment, stoops, but recovers himself without reaching the ground. The object of his regards, a Golden Plover, which he had spied on her nest, has eluded him, and he cares not to pursue it. Now he ascends a little, wheels in short curves, presently rushes down headlong, assumes the horizontal position when close to the ground, prevents his being dashed against it by expanding his wings and tail, thrusts forth his talons, and grasping a poor terrified Ptarmigan that sat cowering among the grey lichens, squeezes it to death, raises his head exultingly, emits a clear shrill cry, and springing from the ground pursues his journey.

"In passing a tall cliff that overhangs a small lake, he is assailed by a fierce Peregrine Falcon, which darts and plunges at him, as if determined to deprive him of his booty, or drive him headlong to the ground. This proves a more dangerous foe than the Raven, and the Eagle screams, yelps, and throws himself into postures of defence; but at length, the Hawk, seeing the tyrant is not bent

on plundering his nest, leaves him to pursue his course unmolested. Over woods and green fields, and scattered hamlets, speeds the Eagle, and now he enters the long valley of the Dee, near the upper end of which is dimly seen through the thin grey mist the rock of his nest. About a mile from it he meets his mate, who has been abroad on a similar errand, and is returning with a white hare in her talons. They congratulate each other with loud yelping cries, which rouse the drowsy shepherd on the strath below who, mindful of the lambs being carried off in spring-time, sends after them his malediction. Now they reach their nest, and are greeted by their young with loud clamour.

"Let us mark the spot. It is the shelf of a rock, concealed by a projecting angle, so that it cannot be injured from above, and too distant from the base to be reached by a shot. In the crevices are luxuriant tufts of *Rhodiola rosea*, and scattered around are many Alpine plants, which it would delight the botanist to enumerate. The mineralogist would not be less pleased could he with chisel and hammer reach that knob which glitters with crystals of quartz and felspar. The nest is a bulky fabric, five feet at least in diameter, rudely constructed of dead sticks, twigs, and heath, flat unless in the centre, where it is a little hollowed, and covered with wool and feathers. Slovenly creatures you would think those two young birds, clothed with white down, amid which the larger feathers are seen projecting, for their fluid dung is scattered all over the sticks, and you see that had the nest been formed more compactly of softer materials it would have been less comfortable. Strewn around too are fragments of lambs, hares, grouse, and other birds, in various stages of decay. Alighting on the edges of the nest the Eagles deposit their prey, partially pluck off the hair and feathers, and rudely tearing up the flesh, lay it before their ever-hungry young."

In Scotland the Golden Eagle nests early in April, often while the snow is still deep upon the hills, selecting a rock generally nearer the bottom than the top of a mountain, and rarely more than 1000 feet above the sea-level. The ledge chosen is almost invariably sheltered by some overhanging crag, the nest built up of sticks and heather is a large structure, five or six feet across, and is always lined with tufts of the grass *Luzula sylvatica*. The eggs are laid about 10th April, and are one, two, or three in number; an instance of four having been found has been recorded. When there are three one is usually addled, and is not so well coloured as the other two. The eggs vary both in size and colour; some are almost completely white; others are closely powdered over with dull brick red; others have lilac underlying shell markings, and are handsomely blotched with red. Those laid by Scotch Eagles are reputed by some collectors to be the largest in size and the best marked; the writer has known £10 asked for a clutch

of two eggs, and doubtless even higher prices have been obtained. Golden Eagles return year after year to the same eyrie; incubation lasts about 21 days; the nestlings are at first covered with white down. When they are able to leave the nest the old Eagles teach them to kill their own prey "by dashing among a covey of Ptarmigan poults, which gives the awkward young Eagles a good opportunity of catching one when separated from the old birds." On the Continent the nest of the Golden Eagle is often placed in a tree.

An Eagle in captivity, too often dirty, and with bedraggled and broken feathers, is a forlorn sight, and an object for the deepest commiseration of any lover of birds. A pair, taken from a nest in Scotland in 1877, throve remarkably well in Lord Lilford's aviaries where, from the care bestowed upon them, they were always in health and in perfect plumage; the hen bird began to lay in 1888 an annual egg, generally devouring it as soon as it was laid; one, however, that was rescued from her, and is now in the writer's cabinet, is a very well marked egg considering it was produced in captivity. The eggs are subovate, and measure from 3·23 to 2·72 inches, by from 2·55 to 2·11 inches.

The Golden Eagle preys chiefly upon mountain hares, rabbits, young lambs, calves of red deer, occasionally upon carrion; more rarely upon birds, though it sometimes pounces upon a Ptarmigan or Grouse, and will hover over and try to seize wild ducks.

"On a bright hot day, without much wind, Eagles are fond of soaring round and round at a great height above the top of a mountain, * * * in this manner they can fly for some time without any perceptible motion of the wings, though the tail is often turned from side to side to guide the flight. The points of the primary quills are always rather turned up and separated, as is shewn in one of Landseer's beautiful pictures, in which an Eagle is flying across a loch to a dead stag which has already been discovered by a fox." (R. Gray—Birds of the West of Scotland). These soaring flights are considered to be more for the purpose of exercise than for a search for prey.

According to Dresser the range of the Golden Eagle embraces almost the whole of the Palæarctic Region, for it occurs from Northern Scandinavia down to North Africa, and from Spain right across Europe into Dauria, in Eastern Asia, ranging south to the Himalayas. It also extends from the Arctic down to the temperate districts of North America.

In form the Golden Eagle is massive and powerful; the head is round and flattened on the top; there is a superciliary ridge above the eyes; the bill is shorter than the head, very deep, and compressed towards the end. The neck is of moderate length; broad shoulders; legs rather long and very muscular; tarsi

short, roundish, stout, and feathered to the point. The toes are covered with roundish scales, padded beneath with soft papillæ, on each of the toes are four terminal scutellæ. The claws are strong, curved, and sharp, the first and second largest, the fourth comparatively very small.

The cere is large and bare above, but its sides and a broad space from the bill to the eye are covered with bristle feathers. The plumage is close and compressed, with the exception of the feathers of the abdomen which are loose and downy; the wings are very long and broad, and, when closed, reach nearly to the end of the tail; the tail is of moderate length, straight, broad, and slightly rounded.

The general colour of the plumage is dark chocolate brown, somewhat glossed with purple; on the crown of the head and nape the feathers are fulvous and elongated; the head, neck, tarsus, and inner sides of the thighs light yellowish brown; tail brownish black, more or less variegated with grey. The young are brown, and have the basal half of the tail white. The female resembles the male, but is much larger. In the adults the bill and claws are black, shaded towards the base with greyish-blue; cere and skin at base of bill rich yellow; irides hazel; toes rich yellow.

Adult males vary in length from thirty to thirty-four inches, with an average alar extent of about six feet; females vary from thirty-four to thirty-nine inches in length, with an alar extent of seven feet, three inches.

The plumage of the adult Golden Eagle is brightest immediately after the moult; the upper parts are then a rich chocolate brown, with purplish reflections, and the tawny feathers of the nape and crown are of a richer gold; the brightness of the feathers gradually fades; after examining upwards of fifty Scotch specimens Macgillivray came to the conclusion that birds when they first attain the mature dress are darkest, and that older birds become lighter with advancing age. In a young bird, recently shot on Ben Nevis, and examined by the writer, the head and neck are covered with pale rust coloured, elongated feathers, each feather tipped with buffish white; and the plumage of the back is a light brown; the small upper wing-coverts along the carpus are of a pale rust colour, slightly tipped with buffy white; throat and under parts blackish brown; tarsi very pale fawn colour, almost white at their juncture with the toes; tail blackish brown at tip, basal part white; all the body feathers have their basal ends white.

Family—FALCONIDÆ.

WHITE-TAILED EAGLE.

Haliaëtus albicilla, LINN.

A LARGER and even more powerful bird than the Golden Eagle, with stronger beak, stouter legs, more formidable and cruel talons, and even greater extent of wing, but with no commensurate spirit, the White-tailed Eagle, with vulturine propensities, feeds chiefly upon what refuse fish and carrion it may discover upon the shore, or else watches the otter and waits until it leaves its captured salmon, or is glad to feast upon the dead sheep upon the hill side. Or it makes the feebler mammals its prey, the mountain hare and the rabbit, or the weakly lamb, sometimes pouncing on a Grouse, or robbing the nests of the Gulls and cliff birds of their young, sometimes making a raid upon the poultry yard, or, sailing out over the sea, striking and impaling upon its claws a basking fish. The Ravens pursue it, and strike at it, so do even Rooks and Gulls; the Great Skua, the well-known Bonxie, is dear to the shepherds, as this courageous bird will never permit the Eagle to approach its cliffs, and will not rest until it has driven it away.

The lofty crags overhanging the sea are the White-tailed Eagle's favourite station, whence it sallies forth to beat the shore in quest of food. Here it makes its eyrie, returning year after year to the same station. It was a more common bird than the Golden Eagle but, like that species, has suffered cruel persecution, and for a century or more has been exterminated in all its ancient haunts in England and Wales. In old days it is said to have had eyries on Lundy Island, at the mouth of the Bristol Channel; on the Dewerstone Rock, near Plymouth; in the Isles of Wight and Man; in the Lake District, and probably in Wales; but at the present time any one who would wish to see it in a wild state must seek it in the Western Isles of Scotland.

As the immature birds wander south in the autumn and winter the White-tailed Eagle is oftener seen in the South of England than the Golden Eagle, although adult birds are very rare; on the eastern coasts it is almost a regular autumnal visitor, and the writer has known of several instances of its occurrence of late years in Devon and Cornwall, and on the Quantock Hills in West Somerset.



WHITE-TAILED EAGLE ♀ ♂

Rabbit warrens, estuaries, the lakes in parks, and decoys, are the places most visited by the young birds on their migrations. In Ireland, where the White-tailed Eagle was once numerous, but few now survive, poison placed in carrion having accounted for most of them. Robert Gray considered the Isle of Skye the head quarters of the White-tailed Eagle in Scotland, and there was a time when every bold headland maintained its pair; but even there a remorseless war has been waged against them; fifty-seven shot on one estate, fifty-two on another, so runs the tale of blood, the nests, too, were destroyed by burning peats being let down into them by ropes! Harvie Brown writes: "There is no doubt about the marked decrease in the number of inhabited eyries of the White-tailed Eagle during the past fifteen years." * It is only on the inaccessible cliffs of some of the remotest and smallest islands, like those of the Shiant group in the Outer Hebrides, that they have any chance of existence. "Long may they continue in their inaccessible retreat; and may the broken, overhanging basalt columns, which project far beyond the giant ribs of similar structure down below, resist the tear and wear of time, and prove a sheltering roof to them!"

According to Saunders the White-tailed Eagle is found in Europe in the valley of the Danube and in Turkey; in Scandinavia, Denmark, Northern Germany and Russia; while on migration it visits the rest of Europe, the Canaries, and Northern Africa. It is also found in Asia as far as China, and in Greenland.

The nest, which resembles that of the Golden Eagle, and is also lined with *Luzula*, is usually placed upon a cliff above the sea; sometimes upon a crag inland; frequently on a tree or bush on an island in a loch; sometimes on the ground. In Egypt the nest has been found in the reeds of Lake Menzaleh, resembling a gigantic nest of the Marsh-Harrier. The eggs, two in number, are laid in April; they are dull white, and measure about 2·85 inches, by 2·2 inches.

This Eagle will live to a great age in captivity, but rarely becomes tame. However, the writer was once acquainted with a female that had attained a great state of docility, and took delight in having charge of a brood of chickens, turn about with a tame Kite. Both birds were the property of the Hon. T. Powys, (afterwards well-known as Lord Lilford, the distinguished Ornithologist) and were in charge of Osman, the Oxford bird-stuffer, in whose yard, in his undergraduate days, the writer often saw them, finding the Eagle with two or three chickens on her back, while she was engaged in breaking up food for others running about at her feet.

An adult White-tailed Eagle was shot a few years since near Bridgwater, and purchased at a high price by an American gentleman then living in Taunton; he

* Fauna of the Outer Hebrides—published 1888.

had it stuffed, and placed in a handsome mahogany case,—it was, he said, his country's bird,—and stood it at the bottom of his bed, while over his head, suspended from the wall, waved the Stars and Stripes!

Macgillivray thus describes the flight:—"A beautiful sight it is, on some sunny day, when two Eagles are seen floating lazily in the blue sky, far above the tops of the brown hills. Slowly and majestically, with wide-spread wings, they sail in wide circles, gradually ascending, until at length you can scarcely perceive them. They may continue this exercise for more than an hour, and should you inquire the object of it, you may be satisfied that it is not for the purpose of spying their prey, for no one ever saw an Eagle stoop from such a height. On ordinary occasions, when proceeding from one place to another, they fly in the usual manner, by slowly repeated flaps. In the breeding-season, should two males encounter each other, they sometimes fight in the air, throwing themselves into singular postures, and screaming loudly. The cry of this species is so shrill, that in calm weather one may hear it at the distance of a mile, and it often emits a kind of clear yelp, which resembles the syllable *klick*, *klick*, *klick*, or *queek*, *queek*, *queek*, and which seems to be the expression of anger or impatience."

The White-tailed Eagle may always be distinguished from the Golden Eagle by its having the lower part of the tarsus *naked*, in the Golden Eagle the tarsus is feathered down to the toes. The toes are also different, those of the White-tailed Eagle being covered with broad scutellations on the whole length of the upper middle toe, while the Golden Eagle has only three of these scutellations at the ends of its toes. Like the Golden Eagle the White-tailed Eagle varies greatly in size; Robert Gray gives the average stretch of wing of thirty that he had examined as seven feet and a half; a very large specimen that came into the hands of Macgillivray extended nine feet in stretch of wings!

In the adults the head, neck, forepart of the back and breast, and upper wing-coverts are greyish yellow, the feathers all greyish brown at the base; of the other parts greyish brown, edged with yellowish grey; scapulars and feathers of the rump glossed with purple; those of the abdomen, tibiæ, and subcaudal region, inclining to chocolate brown; quills and alular feathers brownish black with a tinge of grey; upper tail-coverts and tail white, generally freckled with dusky grey at the base; cere pale yellow; beak bluish grey, yellow at the base; in very old birds the whole of the beak is yellow; irides bright yellow; tarsi and toes bright yellow; claws black, with a tinge of greyish blue. The female does not differ from the male, except in being of larger size. Length 33 inches, male; 40 inches female. The young are first covered with greyish-white down, and do not leave the nest until about the middle of August. As soon as they are strong



GOS-HAWK ♀ ♂

on wing, and can secure their own prey, the old birds drive them off, and they begin their wanderings towards the south.

In their immature plumage (in which they are so often taken for Golden Eagles) they are dark brown, mottled with fulvous on the mantle and wings; tail dark brown; beak black; cere and irides light brown. The full plumage is not attained until the fifth or sixth year.

A very large example of an old bird received from the Isle of Lewis was very light in colour, being of a yellowish grey all over. The writer has seen one of a uniform silvery white, that was shot near Glasgow; in this specimen the plumage was much abraded, and it gave the impression of being of a great age. Very old birds are said to become bluish grey upon the mantle. In the museum at Dunrobin Castle there is a perfect albino that had pink eyes.

Family—FALCONIDÆ.

GOS-HAWK (*i.e.* GOOSE-HAWK.)

Astur palumbarius, LINN.

THIS fierce and rapacious bird is now only known in the British Isles as a rare occasional visitor at the periods of migration, when a chance one puts in an appearance from the Continent generally on the eastern coasts, and most frequently during the autumn and winter; these stragglers are mostly immature birds. The last one known to the writer was one seen by his brother, Mr. G. F. Mathew, R.N., near Harwich, one day in the winter of 1895. Stevenson writes: "The Gos-Hawk appears occasionally (in Norfolk) both in spring and autumn, but at uncertain intervals, and has of late years become even more scarce than formerly." At the beginning of the century there were a few pairs of Gos-Hawks nesting in the great forests of Scotland, but in Macgillivray's time they had

become very rare, and he was unable to obtain a specimen. However, R. Gray, writing in 1871, says:—"Within a comparatively recent period I have known the Gos-Hawk to breed in Kirkcudbrightshire, in which district my correspondent, Mr. Tottenham Lee, Junr., who was quite familiar with all the British birds of prey, repeatedly saw the birds flying about. Under the observation of that gentleman a pair of Ravens were turned out of their nest by two Gos-Hawks, who appropriated it to their own use, and a second nest, built not far from this locality, was situated in a tree." Game preservers may congratulate themselves that there are no Gos-Hawks resident at the present day in this country, for it would go badly with their hares and Pheasants if there were. Reported nests of the Gos-Hawk in the south of England were without doubt all mistakes; some other bird, the female Peregrine, most probably, having been confounded with it, although this *Hawk* is a very distinct bird, with its short rounded wing and long tail, from the noble *Falcon*.

The Gos-Hawk is a bird of the large woodlands, not, however, restricting itself to them in hunting for its prey, but sallying forth, and especially in the autumn and winter, to scour the open country for Partridges and hares, often making a raid upon farm yards to take toll of the poultry and Pigeons. Almost everything in the shape of feather and fur, big or small, affords it a quarry, mice, small birds, hares, rabbits, Pheasants, etc., and in spite of its short wings it has a swift and powerful flight.

Mr. Joseph Wolf, the distinguished artist who, in his boyhood's home in the Ardennes was very familiar with the Gos-Hawk, terms it a "brute," as it cruelly strikes down any bird that it comes across, irrespective of any need to satisfy its hunger. Fresh from slaughter in the poultry-yard, it will pursue and kill some Little Owl that may unfortunately be taking a short flight, and may cross its path. Lord Lilford's trained Gos-Hawks were always ready and eager to fly at Barn-Owls when they had the chance.

In the old days of Falconry the Gos-Hawk was trained and did service in pursuing and capturing rabbits, which were given as food to the nobler Falcons whose quarry was taken in the air, and for this reason the Gos-Hawks used to be termed the "cooks," as upon them mainly depended the larder of the Hawking establishment. In the modern revival of Hawking many Gos-Hawks are sent to this country from Germany; the female birds are the ones usually trained, and sometimes provide excellent sport in flying after rabbits and hares, and also Pheasants and Partridges. The writer received a strong impression of the sharpness of a female Gos-Hawk's mandibles whilst watching a trained bird devouring a large rat given to her for her meal. Holding it firmly with her feet, she cut

it up with her beak into neat longitudinal strips of fur and flesh which were then bolted. Sport with Gos-Hawks is apt to prove dull occasionally, as the birds on receiving a check will fly off and perch upon some tree, where they will sulk for hours in complete indifference to the lure, and then, as an old keeper observed, "Lor, Sir, this is very poor work after ferrets!"

The Gos-Hawk is found in all the well-wooded countries of Europe, rarely in North Africa, while in Asia it extends through Asia Minor, North Palestine, Persia, Turkestan, the Himalayas, Mongolia, North China, and Siberia. It is occasionally seen on the plains of India during the cold season. In North America it is replaced by a closely allied subspecies, *Astur atricapillus*.

The Gos-Hawk nests in April, and according to Seebohm "generally selects a lofty beech for the situation of its nest, which is usually placed at some elevation from the ground in one of the main forks. It also breeds in oaks and pine trees; and even, when systematically robbed, it will breed year after year in the same nest." Lord Lilford found the Gos-Hawk nesting "in coniferous trees, in the lateral boughs at a considerable height from the ground." A nest examined by Seebohm was "an enormous structure, measuring at least four feet by two." "The Gos-Hawk," he adds, "builds a deeper nest than the Eagles or Buzzards, and lines it with fine twigs, roots, moss, and lichens, but not green leaves. The largest nests are most probably the oldest, and have been added to year after year. All the nests I saw were in the forests, but not at any great distance from the outskirts." The eggs are usually four in number, occasionally three, sometimes five; they are pale bluish green, approaching white, very rarely spotted with dirty blood-red, and in size measure from 2·45 to 2·1 inches, by from 1·85 to 1·6 inches.

The flight of the Gos-Hawk is extremely rapid and low over the ground, the long tail being used as a rudder, thrown to the right or left, upwards and downwards, to check the progress of the bird, or to enable it to alter its course. Its cry is said to resemble that of the Sparrow-Hawk.

The Gos-Hawk may best be described by stating that it is a giant Sparrow-Hawk. The colour of the upper parts is dark greyish brown; the tail has four bars of darker brown; eye-stripe, lores, and nape, dull greyish white; under parts nearly white, spotted and barred with dull black, except on the under tail-coverts; cheeks dark brown; legs and toes yellow; claws black; beak bluish horn colour; cere yellow; irides orange. The female resembles the male, but is larger and browner. Length of male twenty inches; of female twenty-three inches. The young birds have the upper parts brown; the under parts buffish white, closely marked with drop shaped spots of reddish brown; cere and legs greenish yellow; irides yellow.

Family—FALCONIDÆ.

AMERICAN GOS-HAWK.

Astur atricapillus, WILSON.

THREE examples of the American Gos-Hawk, that only differs from the bird just described in having a black head, and narrower and more numerous transverse markings on the breast, have been obtained in the British Isles, one in Scotland, and two in Ireland. One in Perthshire, in 1869; one in Tipperary, in 1870, and one, in the same year, at Parsonstown, King's County.

Family—FALCONIDÆ.

SPARROW-HAWK.

Accipiter nisus, LINN.

THE well-known Sparrow-Hawk is a Gos-Hawk in miniature, possessing all the spirit and ferocity of its larger representative, and like it is a bird of the woodlands. Although keepers regard it, and with justice, as one of their most dangerous enemies, and destroy it and its nest whenever and wherever found, still in many parts of the kingdom it is a common species, and it would seem as if it was almost impossible to extirpate it. Its method of hunting for its prey must be familiar to all dwellers in the country, who have seen it as with rapid flight it skimmed along some hedgerow, suddenly darting out its feet to capture



SPARROW HAWK ♀ ♂

a finch which it carries a little distance, and then settles upon the ground to devour, first plucking off most of the feathers, and leaving them in a neat little heap to testify to the fact that it has here lately enjoyed a meal. Often the Sparrow-Hawk will be viewed dashing into a confused flock of small birds in the air, especially in the neighbourhood of a rick-yard, seizing one and bearing it away. Great is the anger of the Swallows when one of them becomes the victim, they will mob and chase the tyrant with shrill angry cries. Often, too, will the Sparrow-Hawk drop like a thunder-bolt from the sky upon a Thrush feeding upon the lawn; there will be a shrill scream, and in an instant, before there is any possibility of rescue, it is snatched up and carried away. The Blackbird is a favourite quarry, vain is it for him to attempt his usual method of escape by darting into some thick hedge or coppice, the Hawk will follow in all his windings and cannot be shaken off. Still larger game is sought; Wood-Pigeons are struck off their perches on the trees, while the feathers left on the ground beneath will show where they have been devoured. Some moors below the writer's house in Wales were regularly worked by Sparrow-Hawks for Snipe, and most of them were killed as they dropped in. Merlins were at first regarded as the aggressors, but the Snipe feathers found upon the ground at one particular spot to which they were carried to be eaten, and a cock Sparrow-Hawk put off one morning from a Snipe still living that he reluctantly quitted, made it unquestionable who the Snipe destroyers were. Young Partridges and Pheasants are often carried off and, at the time the young are to be provided for, the hen Sparrow-Hawk is certainly the most deadly foe to game of all the British *raptores*. Tame Pigeons are common victims, the robber will return for them again and again, as long as any are left in the dove-cotes. Many a Sparrow-Hawk has met its death by dashing against a plate-glass window attracted by a Canary hanging up in its cage inside. Wild and untameable as is this feathered Ishmaelite, falconers have trained and used him to take Partridges, Quail, Blackbirds, and other small birds; the writer once attempted this difficult task; with a long leash attached to the Hawk's leg a few flights were obtained, but nothing further achieved. The Sparrow-Hawk dreads no foe, and will attack anything; one day when the writer was feeding a fine Falcon upon his wrist, a little cock Sparrow-Hawk seated close by upon a bow-perch suddenly darted up, and, the length of his leash allowing it, seized the Falcon round her throat with his long feet, and would speedily have throttled her had she not been rescued from his tenacious grasp with some difficulty. Frequently this bold Hawk will swoop down and pick up birds that have been shot almost at the sportsman's feet; this has happened to the writer more than once when he has been pursuing Plovers and Sandpipers upon the shore.

The Sparrow-Hawk loves to nest in a thick plantation, selecting in preference a larch, Scotch fir, or spruce, but when these cannot be had it will be content with an oak or some other tree. The nest is a flat and shallow structure built of sticks and twigs broken off from the tree in which it is placed, and is sometimes lined with a little moss. Or else the old nest of a Wood-Pigeon, Crow, or Magpie will be appropriated, some additional sticks being added; year after year the Hawks return to the same nest and enlarge it, until some of the nests examined by the writer have become large and untidy abodes, the added sticks often serving as a platform on which the old birds drop the food for the young, and on which the young birds sit out when nearly fledged, keeping up a plaintive wailing that often betrays the nest to the destroyer. The eggs, of an oval shape, are four to six in number, and are handsomely marked on a ground of bluish white with bold splashes of reddish brown, which often form a zone at one end, or else they are closely freckled all over with small spots of red; there is usually one egg in the clutch that is smaller and with fewer markings than the rest. The Sparrow-Hawk's eggs, with their pretty varieties, are among the favourites in the Oologist's cabinet. They measure from 1·78 to 1·5 inches, by from 1·39 to 1.2 inches.

The Sparrow-Hawk is distributed all over Europe up to the limit of forest growth; in Asia, as far north as the Arctic Circle, and as far east as China and Japan; also in Algeria and the Canaries. The northern Sparrow-Hawks migrate in the winter to the south of Europe and north-east Africa.

Seebohm states that among small birds the Chaffinch and Willow Warbler are the commonest prey of the Sparrow-Hawk; it will sometimes capture and eat young rabbits, moles, and mice.

The adult male is of a dark slate blue on the upper parts, with a patch of white upon the nape; the tail is greyish brown, barred with darker brown; the under parts are rufous, barred with darker rufous. In very old birds the transverse bars become much narrower. The beak is blue; cere, legs, and toes yellow; irides orange; claws black. The adult female has the upper parts brown, with a white nape spot; the under parts are greyish white, barred with brown. She is very much larger than her mate. The young males are brownish like the female, but with some rufous edgings to the feathers of the back; the tail is reddish brown, especially at the base; the dark markings on the under parts are in spade shaped blotches. Nestlings are at first covered with white down. Very old females assume the plumage of the male. There are numerous local races of the Sparrow-Hawk; some authors have considered the variations in the shading of the plumage and in size sufficient to justify the creation of a number of subspecies.

The length of the male is twelve inches, that of the female fifteen inches.



KITE ♂ ¼

Family—FALCONIDÆ. *Genus—MILVUS.*

THE KITES.

THERE are, Dresser states, six representatives of the Genus Milvus, all belonging to the Old World, of which one was formerly a characteristic British bird, but is now all but lost to our Ornis, owing to persecution. One other, the Black Kite, has been only once obtained as a straggler in this country.

The Kites are lovers of the woodlands, of graceful soaring flight, they frequent the neighbourhood of rivers, and are partial to inhabited districts, commonly venturing into towns where they are useful scavengers. They build in lofty trees, and in cliffs, using all manner of strange articles for the lining of their nests. Their wings are long, and the tail is long and forked.

Family—FALCONIDÆ.

KITE.

Milvus ictinus, SAVIGNY.

THE present century has witnessed the almost complete extermination of the Red Kite in the British Isles, formerly one of our most characteristic birds that might have been seen wheeling in its buoyant and graceful flight, and displaying its long forked tail in any wooded landscape. In the home and midland counties it was especially numerous, becoming scarcer in the extreme south-west. In the middle ages it is on record that foreigners used to be astonished at its numbers even in London itself, where, no doubt, it was a useful scavenger.

Although there is but little information on the point the writer believes that the Kite was migratory, the greater number arriving in the spring, and departing again in the autumn. Montagu says "the Kite chiefly inhabits wooded situations, but frequently changes its abode in the winter, though it never wholly quits this country." It was already very rare in Devonshire in his time,* although still common in many other parts of the kingdom. At the present day one or two pairs are resident in the central districts of Wales, and possibly in a few places in the Scotch Highlands, but they have so precarious a tenure that it is to be feared that by the end of this century there will be no Kites nesting anywhere in the British Isles. When the writer was an undergraduate at Oxford, old Osman, the bird-stuffer, used to speak of the Kites he had seen soaring in the air over Folly bridge, and various friends have described how they had themselves, in their youth, seen it often enough in Wales where it used to be the dread of the hen-wives. The last nest in England was probably the one in Lincolnshire, in 1870. In Scotland Macgillivray who, however, had never seen a nest, could speak of it as far from uncommon in 1840 in Dumbarton, Argyle, and Perth; in the first of these counties it is no longer resident, the last nests known to Robert Gray having been in 1858; when he published his account of the "Birds of the West of Scotland," in 1871, he considered it doubtful if the Kite then bred anywhere except in the counties of Perth, Inverness, and Aberdeen. In various shooting visits to the last named county in late years, the writer has never seen or heard of a Kite, and it is only too probable that the destruction of the bird has progressed rapidly, especially as its feathers are sought after for salmon flies. It used to be very common in Sutherlandshire, "but the cutting down of all the large trees and continued trapping have done their work," writes Harvie-Brown, "and the Kite exists there no longer." There is not a single specimen in the museum at Dunrobin. In Wales the greed of collectors for "British" eggs of the Kite is a potent factor in its extinction. Why an egg of the Kite laid in Wales should be valued at £2 or £3, while the eggs of German Kites may be bought of dealers, to any number, at a shilling each, passes the writer's comprehension; he deeply regrets that it should be so, as it appears to him that British naturalists ought to do their best towards the preservation of interesting birds, instead of being mainly instrumental in their extirpation. In the early summer of 1888, a pair of Kites appeared near Dorchester, and might have nested, had not one of them unfortunately been poisoned. In the greater part of the Kingdom the Kite is now only a very rare straggler, and few British Ornithologists have seen it on wing in their own country. A few of the Welsh Kites occasionally

* The beginning of the present century.

cross the British Channel into Devonshire; the writer has known of several having been either trapped or shot, one so recently as in the spring of last year (1896), and the only Kite he himself has ever had the pleasure to see wheeling in the air was one he saw near Bratton, in North Devon, many years ago. Some woods in Huntingdonshire were among its last resorts in England; while in Radnorshire, in North Wales, it was still nesting in 1870.

Some notes on "Birds in Mid Wales" in the Zoologist for 1895, by Mr. J. H. Salter, give the latest account of Kites in the British Islands. Mr. Salter considered it "doubtful if more than seven or eight pairs are left in the Principality. I know of no recent instance of the Kite having nested in Cardiganshire. At Devil's Bridge, which was formerly a favourite haunt, I hear of thirteen having been seen on the wing at once. The last nest in this locality was about 1860. The female was shot from the nest, and the eggs taken. Two young birds from the same neighbourhood were brought to Nanteos. The female, after killing her companion, lived there for about twenty years in captivity, and laid one egg. The Kite wanders to some extent, and occasionally revisits its old haunts." He further states:—"On March 26th, 1894, a pair were reported to be building in a small wood of thin oaks, where for some years they have persisted in attempting to nest in full view of a neighbouring farm. I was not able to visit this locality till May 6th. The nest was soon found, but was empty, the eggs having evidently been taken. A specimen of the lining included a piece of coarse sacking, old news-paper, and tobacco-paper. Near at hand was last year's nest, and at no great distance a third older nest. In the latter were two or three pen-feathers, showing that it had held young Kites, probably in 1892. While this investigation was in progress, a Kite passed over the wood. Passing a bold wooded bluff at the junction of three valleys—a great meeting-place for Kites, Buzzards, Ravens, and Carrion Crows, and the scene of constant aërial skirmishing—we mounted to a wooded gulley above which a pair of Kites soon appeared. They were silent, but their animated flight, which I had never seen to such advantage, showed their interest in our approach. As they rose or dipped behind the sky-line, the forked tail was now closed, now spread, and inclined to one side or the other with each easy and graceful turn. The nest proved to be one in which we had found young Carrion Crows last year. It had been enlarged and repaired, and by climbing the slope I could look into it, thus ascertaining that it contained one egg. This was no doubt the second attempt at breeding of the pair whose nest we had seen previously. Report spoke of a second pair in a neighbouring valley. A farmer told me that he remembered an instance of the Kite, in general a tree-builder, having nested upon the rocks." The writer possesses a photograph of one of

these recent Welsh Kites' nests. It is a large and very conspicuous structure of sticks, placed high up in the fork of a tall tree standing apart by itself.

The Kite has the curious habit, also common to Jackdaws, of carrying off all manner of articles, rags, "lesser linen," especially anything glittering, to add to the lining of its nest; Lord Lilford knew of several instances in which purses of money had been found so utilized. The eggs, laid in April, or early in May, are generally three in number, sometimes only two; they are dull bluish white, spotted or streaked with rusty red, and vary greatly in size; some in the writer's cabinet are covered over with minute streaks; others are suffused with rust colour; others are nearly pure white; others with the rust colour collected in a large patch at the smaller end. In shape they are rather more elongate than the eggs of the Common Buzzard, to which they have a great resemblance. Average measurement 2·25 inches, by 1·75 inches.

In spite of its size and formidable appearance, the Kite is a cowardly bird. "Its depredations are confined," according to Montagu, "to such animals as are found on the ground, young rabbits, hares, and game of all kinds, poultry, and young birds incapable of flying. It will also destroy young lambs, and feeds greedily on carrion; in defect of these it readily eats mice, worms, and insects, and even snakes, the bones of which we have taken from the nest. It frequently resorts to the environs of towns to feed on offal, and is seen to sweep such matter from the surface of water with great dexterity." Montagu was much amused by witnessing its audacity as a thief:—"A poor woman was washing some entrails in a stream of water, part of which extended a few yards out of the basket placed in the water: the hungry bird had long been hovering over, viewing with anxious eye so delicious a bait, and took the opportunity of actually pouncing upon and carrying off a part, in spite of all the woman's efforts with hands and tongue, the latter of which might have alarmed a more powerful enemy." In the old days of Hawking the Kite often afforded good flights when pursued by the Peregrine, and for this circumstance was entitled '*regalis*,' as its chase was considered worthy of Kings. As late as 1773 this sport was indulged in by the Earl of Orford and Col. Thornton on Thetford Heath, in Norfolk, in which county Kites were then found in abundance. The old names of the bird testify to its once common dispersion throughout the kingdom; Gled, or Glead, from its graceful gliding flight; Puttock, in Shakespeare, etc.; Common Kite; Fork-tailed Kite, etc. The cry of the Kite is a shrill scream; when Keble, in the Christian Year, wrote of "the wheeling Kite's wild solitary cry," the bird was then, (1827) no doubt, common enough in Hampshire.

Dresser states that the Kite is found exclusively in the Western Palæartic

region, being spread over Central, Northern, and, to some extent, Southern Europe during the breeding-season; and in the winter is met with in Southern Europe and North Africa.

The adult male is reddish brown on the upper parts, each feather with paler edges; those of the head and neck are much elongated, greenish-white, streaked with brown; lower parts rufous brown, streaked with dark brown; tail, which is deeply forked, reddish brown, with darker bars; bill horn colour; cere, irides, and tarsi, bright yellow; claws black.

The female only differs from the male in having a lighter head and the under parts more rufous, and in being somewhat larger in size. Young birds are paler in their plumage, and more mottled both on the upper and lower parts.

Length of male, 25 inches; of female, 27 inches.

Family—FALCONIDÆ.

BLACK KITE.

Milvus migrans, BODDAERT.

THIS common Continental species, which is not *black*, but a darker rufous than the Common Red Kite, and with its tail less forked, has only occurred once with us, according to Saunders, an adult male having been trapped in the deer-park at Alnwick, and brought in a fresh state to Mr. John Hancock, of Newcastle, May 11th, 1866. However, Robert Gray believes that there is evidence that this Kite has occasionally visited Scotland, and has been correctly reported from Forfarshire. He considers that, at the present day, the Black Kite is about as likely to make its appearance in this country, as a chance migrant, as its congener, now well nigh exterminated as a resident species.

Family—FALCONIDÆ.

AMERICAN SWALLOW-TAILED KITE.

Elanoïdes furcatus, LINN.

A WANDERER from America. Although Harting enumerates five occurrences of this very beautiful bird, whose plumage is deep glossy black on mantle, wings, and tail, with white head and under parts, and has an extremely long and forked tail; yet Saunders, who has doubtless sifted them, only admits one as sufficiently authenticated, the specimen obtained at Shaw Gill, near Hawes, Wensleydale, on 6th September, 1805.

The eggs of this Kite obtain a very high price from collectors. When Mr. Leopold Field's collection of eggs was sold at Stevens' Auction Rooms, in June, 1895, a clutch of three from Texas realized £9 10s., while a single egg, "a magnificent specimen," went for £5 10s.!

Family—FALCONIDÆ.

BLACK-WINGED KITE.

Elanus cæruleus, DESF.

THIS pretty little African Kite, which in the adult plumage closely corresponds to the male Hen-Harrier, and is extremely unlikely ever to occur in the British Isles, is stated to have once been obtained in Ireland. Saunders writes: "I have examined an immature specimen of the little Black-winged Kite, said to have been shot about 1862, in Co. Meath; but it was unrecognized for ten years, and the evidence is not wholly satisfactory."



HONEY-BUZZARD ♀ ♂

Family—FALCONIDÆ. *Genus—PERNIS.*

THE HONEY-BUZZARDS.

THREE species are known of the Genus Pernis, of which one only is met with in the Western Palæarctic Region. They are chiefly insectivorous, feeding largely on wasps and bees, and their grubs, scratching out the nests; they also devour reptiles, birds' eggs, and young birds. Their flight is heavy, and they are spiritless birds. They nest in trees, and invariably line their nests with green leaves. Their beaks and talons are feeble, compared with those of the other *raptores;* their lores are covered with close, scale-like feathers.

Family—FALCONIDÆ.

HONEY-BUZZARD.

Pernis apivorus, LINN.

THIS singular bird would probably be a regular summer visitor to most of our large woodlands, especially to those where the beech, its favourite tree, is common, if only it could escape molestation; but, alas! its fate is sealed directly it appears, for not only is it a large Hawk, and therefore to be destroyed for the sake of the game, but it is also precious in the eyes of "collectors," and its beautiful eggs, if they are "British," will command a high price. But look at it, and note its comparatively feeble legs and talons, its weak and slender beak; they are not powerful enough to make it formidable to the game-preserver; look,

too, at those closely compacted feathers which guard the lores as if with a coat of mail, and ask the reason for them; they are Nature's protection for the bird against the stings of the wasps and bees which form its favourite food; its harmless character thus becomes apparent.

There are two arrivals of the Honey-Buzzard in this country during the year; the first of old birds, late in the spring, coming from the south and seeking a nesting station, too generally doomed to slaughter; the second, chiefly on the eastern coast, of young birds in the autumn, crossing over from the Continent, in their uniform chocolate plumage. The Honey-Buzzard has been known to nest in many of the southern counties of England; also in Northumberland, and in Scotland, as far north as in Aberdeenshire, while it has occurred in the autumn in Sutherlandshire. At Burnham Beeches, and in the New Forest, several pairs once nested annually. It is rare in the extreme western counties, but is believed to have nested in Cornwall. In Somerset it has frequently occurred on the beautiful Quantock Hills, where the writer has seen it on wing. It probably is still a rare and local visitor every year to this country, it is to be hoped to quiet places where it may be accorded protection. It appears to be very rare in Ireland.

The Honey-Buzzard is a summer visitor to most of the countries of Europe, and is one of the latest to arrive, going so far north as Sweden and Norway. In winter it is common in Egypt, and in West Africa, and goes far south into that great continent. It has been observed crossing the Straits of Gibraltar at the periods of migration in large flocks, and Gätke has noted it passing over the tiny island of Heligoland, in September, in continuous companies of thirty or more, all heading to the west.

The Honey-Buzzard is said to run rapidly on the ground while searching for its food, this it is able to do as its talons are short and feeble in comparison with those of other *raptores*. Besides wasps and bees, with their grubs and honey, it also preys on moles, rats, mice, earth worms, dragon flies, young rabbits, birds' eggs, young birds, snakes, lizards, and occasionally upon grain, berries, and fruit. Its flight is heavy, but it sometimes soars in circles in the air, uttering a shrill cry, *kee-kee-kee;* in general it is a silent bird. Lord Lilford states that some young Honey-Buzzards in his aviaries prospered on an exclusive diet of bread and milk, preferring it even to a wasp-comb full of grubs; he had previously failed to keep others alive during the winter on the ordinary food of *raptores*. Young Honey-Buzzards become very tame in captivity.

The Honey-Buzzard nests late in May or in June in some lofty tree; according to Seebohm's experience in Pomerania, the old nest of a Common Buzzard is usually selected, and relined with a profusion of fresh green leaves,

or the ends of branches of trees in full leaf, a preference being given to beech leaves; these leaves are continually replaced by the birds as they fade. Dresser has seen the nests protected with freshly plucked branches, as if to form an arbour to shade them, and judging from their greenness, considered that they must be changed daily. He remarks:—"As soon as a nest is garnished with these green leaves one may look out for the eggs." These are usually two in number, rarely three or four. An interval of a week is said to take place between the laying of each egg; incubation lasts three weeks; both the male and female take part in sitting. The eggs are rather round and glossy, very richly marked with brick-red and deep purple blood-red, upon a ground colour that varies from cream colour to pale brick-red; some of the varieties are very handsome. The dark colour is sometimes scratched across by pale lines, just as if a painter's graining comb had been employed; similar scratches, of a bolder kind, also occur in the eggs of the Egyptian Vulture. The eggs measure from 2·05 to 1·86 inches, by from 1·7 to 1·55 inches.

In a pair of adults the writer has in his collection from Hampshire the male has the crown of the head and sides of the face ash-grey, back of the head and nape brown; beak and tail grey-brown, some of the feathers on the back have lighter edgings; the tail has three darker bands, the subterminal the broadest, besides several other narrower wavy bands; under parts from chin to belly yellowish-white, the feathers rather sparingly streaked and barred with reddish-brown; primaries brownish-black above; greyish-white, barred with dark brown, below; cere, irides, and legs yellow; claws brownish-black; beak blackish horn.

The female is brown all over, the breast and under surface of the wings yellowish-white, much barred with reddish-brown; on the tail are four darker bands, with other narrower wavy bands, and a few patches of yellowish white on some of the central rectrices; primaries brownish-black.

The average length is about twenty inches, the female being but very slightly larger than the male.

Very old males have the cap distinctly bluer, and the under parts almost entirely white, with only a few bars on the flanks.

In the immature plumage there is considerable variation; the usual dress is a uniform chocolate brown all over, with darker primaries, and a white tip to the tail. A young bird in the writer's collection, from Cambridgeshire, very closely approaches a variety figured by Dresser, in which the head and neck are yellowish white, some of the feathers being narrowly tipped and streaked with rufous-brown; back rufous brown, many of the feathers blotched and edged with white; under parts yellowish white, closely streaked in the centre of the feathers with dark

rufous brown, fading off to lighter; tail brown, tipped with white, with numerous narrow darker wavy bands; primaries blackish brown.

Seebohm considers that there are two forms of the Honey-Buzzard, a darker and a lighter, with intermediate forms which are much spotted; while Dresser believes that, in the younger birds, there is a tendency towards albinism. As in most of the Buzzards and Eagles there is a slight gloss upon the plumage. Macgillivray terms the Honey-Buzzard "the Brown Bee-Hawk."

Family—FALCONIDÆ.

GREENLAND FALCON.

Falco candicans, GMEL.

WITH this powerful and beautiful bird, the great White Falcon of the Polar regions, the true Falcons are now reached, of which the well-known Peregrine is regarded as the type; they are birds of great courage, swift and strong on wing; greatly valued throughout the world for the assistance which, when trained, they can render to sport, and to be distinguished by the projecting tooth on the cutting edge of their upper mandibles; by their flight feathers—the first and third being equal in length, while the second is the longest; by their irides being hazel, instead of the yellow of the less noble Hawks; while some of them, the Peregrine, Hobby, and Merlin, have a characteristic line of black feathers extending downwards on either side from the gape, termed by falconers the moustache.

The Greenland Falcon is the *whitest* of the four species of Gyrfalcon now recognized by ornithologists, inhabiting the northern-most parts of the old and new worlds, never nesting south of the Arctic circle. It is only by some accident, when following the autumnal migrations of wild fowl, that it comes so far south as the southern shores of the British Isles. Two have occurred in Cornwall; one



GREENLAND FALCON ♂ ⅓

of them was described to the writer by the Rev. W. Willimott, an accomplished falconer, as "a very beautiful specimen, nearly snow-white, with very few dark spots, the whitest I ever saw living or dead; it was shot on a Pigeon, which it was seen to knock down, on the Goonhilly Downs in the Lizard district." In Devonshire two have also been obtained; one shot in November, many years ago, on Lundy Island, the other, secured near Plymouth, a very white bird, was in the fine collection of the late Mr. E. H. Rodd, of Penzance. A young bird, from which Yarrell's picture was taken, was shot on Lord Cawdor's estate, Stackpole Court, in Pembrokeshire, where it had been for some time living on the Pheasants. Another instance in the S.W. counties was the White Falcon which was seen by Mr. Henry Swaysland, of Brighton, sitting on the cliffs at Rousdon, Sir Henry Peek's place, near Lyme Regis, in 1882, which allowed him to approach it within about thirty yards; it had been observed about Rousdon for some two months previously. It is not unlikely that this was the bird that was subsequently shot on the top of Bullock Hill, near Balsdean, in Sussex, on 26th September, 1882, that was seen by Mr. J. H. Gurney, junr., and determined by him to be an adult Greenland Falcon. Other examples have occurred in Norfolk and in Yorkshire. As was to be expected, more have been secured in Scotland and its Islands. Four have been reported by Robert Gray from the Hebrides, one from Lanarkshire, one from Perthshire, another from Aberdeen. Harvie-Brown mentions two from Caithness, while Lord Lilford knew of several from the neighbourhood of Loch Rannoch and Loch Tummel, in Perthshire. In Ireland the Greenland Falcon is occasionally met with; eight were reported from the west coast during the winter of 1883-4. No doubt other instances might be recorded if all the Gyrfalcons that have been obtained in the British Isles could be examined; it is only of late years that different species of the Gyrfalcon have been recognized, so that it is impossible to say to what species the early recorded birds may have belonged.

Seebohm states that the Greenland Falcon "is the only Hawk resident in the Arctic regions. Its keen eye, rapid powers of flight, and capability of being tamed, make it a favourite with the falconer, and the terror of the weaker birds. Its home is the *tundra* beyond the limits of forest growth, where it selects the rocks and mountains in which to breed." Ptarmigan, Waterfowl, and Sandpipers form its chief quarry; one was seen with a young Kittiwake, and another with a Purple Sandpiper, in each foot; some of the "White Falcons" seen in Scotland evinced a preference for Rooks. The flight of the Greenland Falcon is described as grand and powerful. Should any intruder approach its nest, it will boldly sally forth to attack, flying round in circles with such velocity as to produce a rushing sound as it darts through the air. Very few naturalists indeed have ever seen

the nest, which is said to be placed on a ledge of rock, either a cliff overlooking the sea or inland, and sometimes on the top of a pine or some other tree, and is built of twigs and small branches, and lined with moss, deers' hairs, feathers, or sea weeds. The eggs, laid in May or June, are usually four, sometimes only three; they are considerably larger than those of the Peregrine, measuring from 2·4 to 2·2 inches, by from 1·9 to 1·8 inches. The ground colour is creamy white, closely freckled over with orange-brown, rich reddish-brown, and brick-red. Some closely resemble typical Hobby's eggs; others are like certain varieties of the Peregrine. A beautiful variety described by Seebohm was mottled all over with pale rosy-pink shell markings, intermixed with pale reddish-brown blotches and spots on a creamy white ground. The shell is rather rough, and without gloss. The eggs vary much in size and form. In a clutch of three in the writer's cabinet, taken May 21st, 1894, at Sakkertappen, in Greenland, one is elongated, while the other two are subovate.

Lord Lilford writes:—"to the eye of a Falconer there is a peculiar 'make' and character about the Greenland Falcon that are quite sufficient to enable him to identify her, even if she were jet black," adding that, in captivity, according to his experience this species is "extremely docile, and a very fine and powerful flyer and stooper, but what we call in falconry a poor 'footer,' that is, it is not able, or more probably not disposed, to bind to and grasp its quarry firmly; it is also by no means hardy of constitution, and is difficult to keep in good condition for field purposes." In his beautiful coloured figures of British Birds he gives the portrait of a very fine adult female, "one of the tamest Falcons that I ever knew," that was at the time in his aviaries.

The home of the Greenland Falcon is in the northern parts of Greenland, in Arctic America, from Baffin's Bay to Alaska, probably also in North Siberia.

In the colours of its plumage it closely corresponds with the Snowy Owl, from its earliest youth the ground colour is white. Very old birds become almost pure white all over, with some of the feathers on the back and upper surface of the wings tipped with black; tail pure white. There are darker birds which have the tail barred with black, and with more black markings on the upper parts. In immature birds the markings are not black but sooty brown, and are longitudinal instead of transverse, and are tear shaped on the breast, and the tail is barred. In young birds the cere, beak, and legs are horn blue; in the adults they are pale yellow; claws light horn; irides hazel. Young birds attain their full plumage in their second year.

Length of male 21 inches, of female 23 inches.



ICELAND FALCON ♂ ⅓

Family—FALCONIDÆ.

ICELAND FALCON.

Falco islandus, GMEL.

THIS is a somewhat larger and stouter bird than the preceding species, with a shorter tail in proportion, longer wings, and larger head; it is also darker in plumage. It receives its name from its being a nesting bird in Iceland; it is also found in South Greenland, whence it wanders to the north of Europe, and it occurs on the eastern side of North America.

Like the Greenland Falcon the Iceland Falcon has also been noted more frequently in Scotland and its Islands than anywhere else in the kingdom. Dr. Saxby reports that, in former days, it was almost a regular winter visitor to the Shetland Isles, to Unst especially; and was usually seen after a snow storm accompanied by a heavy gale. Robert Gray states that between 1835 and 1851, several specimens were shot in the counties of Ross, Sutherland, and Inverness; "and within the last four years I have satisfied myself that four or five have been shot in the west of Scotland." He also mentions others obtained in the Hebrides. Harvie-Brown knew of two in the county of Caithness. In England, the Iceland Falcon has been reported from Northumberland, Yorkshire, and Sussex, in single instances. It has also been obtained in the Channel Islands. In January, 1895, Messrs. Pratt, of Brighton, received one that had been shot in the Scilly Isles, and a few weeks later one was killed in Breconshire, and recorded in the *Field*. But as both Greenland and Iceland Falcons are occasionally brought alive to this country in whaling ships returning from the Polar regions, and command a high price from falconers, it is not unlikely that some of the instances given above may have been escapes. Thus, in January 1870, a fine young female Icelander, caught among some sedges in the parish of St. Merryn, near Padstow, and recorded at the time by Mr. E. H. Rodd in the Zoologist, proved to be, without any doubt, as that gentleman was informed by Major Fisher, the well-known Falconer, of the Castle, Stroud, an escaped bird from Cardiff, where a number of Iceland Falcons, recently imported from Iceland, were at that time kept and flown. An Iceland Falcon has also been reported from the neighbourhood of Plymouth.

"From having kept some of all the three Northern Falcons in captivity,"

Lord Lilford is able to say:—"I am convinced that the Icelander, and the true Gyrfalcon of Scandinavia, *F. gyrfalco*, are sufficiently distinct to be entitled to rank as separate species, though I am quite willing to admit that the immature birds are so much alike that no falconer, however experienced, could pronounce a decisive opinion upon their specific identity * * *. From a falconer's point of view I have had but very slight acquaintance with the Iceland Falcon, and am not inclined to rate her very highly, but it must be borne in mind that all the birds of this species trained in this country have necessarily had the great disadvantage of a sea-passage, and in many instances have arrived so much damaged in plumage that they could not be put on wing till after the first moult; all falconers know how much Hawks suffer from a lengthened period of inactivity. Our ancestors seem, however, to have esteemed the Icelanders highly; there are traditions of their being trained to take the Kite, and in more recent days a few of these Falcons were flown at Herons with success in the Netherlands." In his own experience Lord Lilford found the Iceland Falcon difficult to keep in health, as the feet were apt to become diseased. In disposition the birds were "tameable enough, but by no means so hardy as might be expected from the climatic conditions of the country of their origin."

In its habits the Iceland Falcon greatly resembles the Peregrine, preying upon Ptarmigan and sea-fowl, and placing its nest upon a cliff, often in an inaccessible spot, building it with sticks and roots, and lining it with wool, and, like the Peregrine, it will sometimes occupy an old nest of the Raven. The eggs, four in number, sometimes three, are laid in May, and are about equal in size to those of the Greenland Falcon, varying much in colour. A clutch from Iceland in the writer's cabinet are pinkish cream colour, sparingly mottled with reddish orange; while others closely resemble the typical egg of the Hobby.

Dresser gives the following description of an adult male from Greenland: forehead white, striated with blackish; crown and nape dull white, the centres of the feathers slaty black, the hind crown having these centres to the feathers very fully developed; back, scapulars, secondaries, and wing-coverts dark slate, with a brownish tinge, more or less regularly barred with white, or white with a buff tinge; rump and upper tail coverts dull slate-blue, barred with blue-grey; quills slaty-blackish, marked on the outer web and barred on the inner web with buffy-white; tail ashy-grey, barred with dark blackish or brownish-slate, and tipped with white, the outer rectrices having a whiter ground colour than the central ones; sides of the head like the crown; chin and upper throat white; lower throat streaked with blackish-brown; rest of the under parts white, marked with blackish-brown stripes which terminate in a drop-shaped spot; lower flanks barred

somewhat broadly, the upper flanks being marked with rather large heart-shaped spots; under tail-coverts rather irregularly barred; bill bluish horn, darkest at tip; cere and legs yellow; claws almost black; irides dark brown; length 21½ inches. The female is like the male, but larger; length 24 to 24½ inches. Young birds are brown on the back, wing-coverts, and tail, the feathers edged with buffish-white; head and under parts buffish-white, striated broadly with brown.

Family—FALCONIDÆ.

SCANDINAVIAN GYRFALCON.

Falco gyrfalco, LINN.

ONLY two examples of this the typical Gyrfalcon of Linnæus, and the darkest in plumage of the three European species of the Northern Falcons, have been captured in this country. A bird of such powerful wing, and a comparatively near neighbour, might well be expected to visit us oftener. Its best distinction is the presence of the moustache, absent in the other two species. One, in the possession of Mr. Borrer, and figured by him in his Birds of Sussex, was killed in that county in 1845, and identified as an adult Norway Gyrfalcon by the late Mr. J. H. Gurney. Seebohm records an immature example shot at Orford, in Suffolk, in the act of devouring a hen, on October 14th, 1867.

Family—FALCONIDÆ.

PEREGRINE FALCON.

Falco peregrinus, TUNSTALL.

THE Peregrine, the falconer's favourite, on account of its docility, courage, and splendid flight, is still far from rare in the British Isles, although its eyries, through persecution, become every year fewer in number. It chiefly loves to frequent the lofty cliffs that tower above the sea; all round our coasts there used, formerly, to be no suitable station that was not tenanted by a pair of these noble Falcons. But to-day many a fine headland is deserted, the Yorkshire coast on the east, equally with that of Cardiganshire on the west, is said to have lost all its native Peregrines, and it is to be feared that from many another wild sea-board the same tale would have to be reported. In Scotland, and on its rocky Islands, the Peregrine may still be almost as numerous as of yore, but the Blue Hawk, as it is called, is looked upon as a deadly foe to the Grouse and, too often, finds no mercy.

The Peregrine is the most cosmopolitan of all the Falconidæ, ranging throughout the whole of Europe and Asia, while closely allied forms represent it in N. America and N. Africa. Its migrations, northwards in the spring, of old birds, southwards in the autumn, and then chiefly of the birds of the year, occasion it to be noted in every part of the British Isles, and the habit of the old birds of driving their young from the neighbourhood of their birth to find fresh hunting grounds for themselves, also helps to ensure a visit to inland districts from the wanderers. So fearless is the Peregrine that in curiosity, or through an interest in sport, it will fly close up to the shooter, and does not always escape. When gorged after a meal it will perch in a lethargic state upon a bank or rail, and suffer Blackbird-shooting boys to do it to death. A splendid pair in the writer's collection were slain in this unworthy fashion on the banks of the Barnstaple river. One severe winter, when the writer was Woodcock shooting on Lundy Island, hardly a couple of shots would be fired before the party of guns were joined by a Peregrine, and soon after by a second, the Hawks keeping in close attendance, in the technical phrase of falconry "waiting on" above the sportsmen and their dogs, and when a Cock or Snipe was flushed, if it was missed, it had next to run the



PEREGRINE FALCON ♀ ⅓

gauntlet of the two birds who between them generally secured it. Sometimes a wounded Cock was pounced upon and carried off right in front of the shooters, to whose guns the Peregrines were sacred. The writer once watched a Peregrine pursuing and stooping at a Pigeon near a farm-house upon the coast; when it missed its stoop it was joined by its mate, and then the two Falcons together attempted the capture, but the Pigeon saved itself by taking refuge in a hole in the cliff, and its enemies, with a loud cry of anger and disappointment, swept out over the sea. Often on the shore the Peregrine may be seen darting down upon a flock of Wigeon, and striking one of them with its deadly hind talon bear it off to a sand-bank to be devoured. Sometimes lesser game will content it, and it will harry the flocks of Ring-Plover and Dunlin upon the oozes. But there is nothing the Peregrine will not fly at; it will drive off the Eagle passing its eyrie; the writer once saw a trained Tiercel * when flown on the North Devon coast make a dash at a Great Northern Diver that was passing, and Lord Lilford, in Albania, saw a Peregrine fly at and "hustle" an Eagle Owl. The Peregrine preys largely upon cliff birds, the comical little Puffin provides a favourite meal, so do the noisy Jackdaws or the Rock Doves; sweeping with powerful flight over the moors it strikes down Grouse and Partridges or, varying its diet, the blue hare and the rabbit.

The nest of the Peregrine is generally placed upon a ledge of the cliffs looking down upon the sea, often beneath an overhanging crag; sometimes it is on a rock inland, sometimes an old nest of the Raven or Carrion Crow is occupied; sometimes high buildings are chosen for the site—Salisbury Cathedral has for many years provided an eyrie on its spire which is still tenanted, and the Peregrines are carefully protected by the Dean. On the Continent the nest is frequently found in a tree. The Peregrine loves company; few of the large breeding stations of cliff-birds are without this dangerous neighbour, to whose presence in their midst they are quite indifferent. No nest is made; some cavity of the rock suffices, where a little loose clayey earth has been deposited. Here the eggs are laid about the first week in April, both male and female incubating them in turn; the male has been known to hatch and rear the young after the female has been killed. They are devoted parents, nor will they, if fired at, desert their young. Mr. Tracy, of Pembroke, has given, in the Zoologist, a good description of the nests of the Peregrine on the Pembrokeshire coast:—"In almost every instance where I observed a nest the following birds have had nests in the immediate vicinity, that is within 100 or 150 yards: the Guillemot and Razorbill, in immense

* The Tiercel is the male bird; the female is the Falcon; the young birds are Eyases, in the language of falconry.

numbers, within a few feet; Puffins, Kestrel, Raven, Carrion Crow, Jackdaw, Red-legged Crow, Great Black-backed Gull, (one nest), Lesser Black-backed Gull, (several nests), Herring Gull, common, Kittiwakes, in thousands, Common and Green Cormorants, Swifts, and Sand-Martins; and yet not one of them showed any signs of alarm at the approach of so formidable a foe. I do not recollect a nest where the Herring-Gulls, Guillemots, Razorbills, and Puffins were not abundant. The old birds give plenty of notice by their harsh cry when you are near their nest, and it is not difficult to find the spot, the same old arched cavity being occupied every year. In one instance eleven pairs of Herons were breeding on the ledges of the rocks within 150 yards of the nest of the Peregrine Falcon."

The eggs are four, five, sometimes six in number, varying much in colour, some are very handsomely marked; the ground colour is pale reddish yellow on which are brick red, orange red, or reddish-black markings; some are thickly spotted all over with brick red on a lighter red ground, resembling typical eggs of the Kestrel; in shape, some are suboval, others more elongate; they measure from 2·15 to 1·95 inches, by from 1·75 to 1·52 inches. Occasionally a superimposed blotch and streak of lime is found upon the colouring of the egg, as in the egg figured, No. 322; this is a characteristic with the eggs of the Falconidæ, and may be also noticed in the Kestrel's egg, fig. 332.

In old times the Peregrine was trained and flown at the Heron, young birds caught on passage being employed. In modern days good sport is often had Rook-hawking, but it can only be enjoyed in an open unenclosed country; Magpies, too, afford a good quarry, the attendants on the sport cracking their whips and driving Master Mag out of any thick bush in which he may harbour. In captivity the Peregrine is remarkably docile; to be kept in health it must be supplied with plenty of water to bathe in. When trained birds are being flown they commonly make off at first for the nearest water, and after a bath will return to the lure. A pair of Peregrines that for many years kept in perfect health and plumage in the aviary of a friend of the writer's, had a small stream of water running through it that supplied their daily baths. These birds were wonderfully expert in killing rats; it was a great amusement for the men working on the estate to capture rats for them and, bringing them to the aviary, to see how they would be killed by a lightning stroke from one of the Falcons. But these noble birds are very liable to fits; too often the falconer visits his favourites to find one of the best lying dead by the side of its block; they also suffer much from parasites, both in the feathers and in the intestines.

The Peregrine has many local names: Cliff Hawk; Game Hawk; Hunting Hawk; Blue Hawk; while in Scotland it is frequently called the Goshawk.



HOBBY ♀ ♂♂

In the adults the plumage is bluish-grey on the upper parts, barred with a darker tint, the head black, and there is a broad black patch on either side descending from the gape termed the *moustache;* the lower parts are white, suffused with buff, spotted on the throat and upper breast, and transversely barred on the remainder with blackish. Cere and legs bright yellow; irides dark hazel; bill horn colour. Length of male 15 inches, of female 19 inches.

Young birds are ashy-brown above, darkest on the head, each feather edged with yellowish-rufous; under parts whitish, longitudinally streaked with dark chocolate brown; tail irregularly barred with reddish-brown, and tipped with white. The nestlings are at first covered with white down. Varieties occur; the writer has seen a female, obtained in Somerset, that had on the poll and nape the straw yellow feathers characteristic of the Lanner. The Peregrines of the extreme west of England are very white upon the chest, and have ever been highly prized by falconers for their superior dash and courage.

Family—FALCONIDÆ.

HOBBY.

Falco subbuteo, LINN.

THE Hobby is a scarce and local summer visitor to our English woodlands from the south, arriving late in May, restricted in its distribution, some believe, to the same districts as those chosen by the Nightingale; however, Robert Gray considered that he had sufficient evidence of its having once nested in the Isle of Arran. It chiefly affects the eastern and midland counties of England, is always rare in the S.W. counties and in Wales, while in Ireland there are few instances of its occurrence; in Scotland it is only seen as a passing migrant. Not unfrequently it is met with during the winter months, these being birds that have

come to us from northern parts of Europe. In his beautiful work on the Birds of Northants, Lord Lilford states that, during recent years, the Hobby has become more common in that county:—"between the years of 1882 and 1890 inclusive, I had positive evidence of the hatching out of no less than ten broods of this species in our district, and sixteen nestlings were brought to me without, so far as I know, the destruction of any of the parent birds." There can be no doubt that the Hobby would be more frequently seen in this country if it could escape the attentions of game-keepers; being generally shot when it is detected it cannot return again the following spring, and in this way wood after wood becomes bereft of this pretty little Falcon which is perfectly harmless to game. However, there are instances of the same cover being tenanted year after year by a pair of Hobbies in spite of the birds being shot each season. In a case in South Devon of a Hobby's nest being detected in a wood the writer prevailed upon the keepers to spare the birds, until one day it chanced unfortunately that one of them came upon the three young Hobbies perched together upon a block of granite, and the temptation proved too great, and he fired and killed all three. These victims the writer made into skins; they were singularly large birds. There are larger and smaller races of very many birds, and these evidently belonged to a larger race of Hobbies; the difference in size between them and some other young Hobbies that had been taken from the nest, and successfully reared and trained, was very marked. The following summer when this wood was again visited the first thing observed was a beautiful little cock Hobby nailed up among the trophies in the keeper's larder!

The Hobby is a summer visitor throughout the Palæarctic region, extending itself northwards almost to the Arctic Circle; in the winter it migrates far south into Africa.

This small Falcon may be easily recognized by its long pointed wings reaching when closed beyond the tip of the tail; when it is seen in the air it looks like a large Swift. Its food chiefly consists of insects; such as dragon-flies, large moths, and beetles; the writer has watched it hawking late in the evening for insects over large woods in South Devon. It also captures and devours mice and small birds; Larks and Swallows are the favourite quarry. From its being insectivorous the Hobby is not of much use to falconers, but it can be trained to fly at Larks, which will ring high into the air when pursued by it, until both Hawk and quarry are lost to sight.

The Hobby invariably occupies the nest of some other bird, such as the Crow, Magpie, or Wood-Pigeon, and is a late breeder, the eggs not being laid until some time in June. They are three or four, rarely five in number, subovate, and the

average size is 1·6 inches, by 1·25 inches. The typical egg is of a pale ochreous colour, dusted over with minute dark red spots, and with one or two small lines and blotches of dark red; other eggs are reddish, spotted with darker red, greatly resembling those of the Kestrel. Saunders states that "previous to laying the female Hobby is much addicted to brooding on an empty nest, or upon eggs of the Kestrel; and careful observers, who were unaware of this fact, have been led to believe that a nest, from which a Hobby had been seen to fly, really belonged to that bird, when it did not." But, as a rule, there is little difficulty in discovering the real nest, as the Hobby becomes very quarrelsome and pugnacious at the breeding season, and by sallying forth to chase and buffet any Crow, Magpie, or Jay that may be passing will betray its position.

The Hobby becomes a very docile pet in captivity; but Lord Lilford found it difficult to keep his young Hobbies alive, and only in one instance succeeded in doing so through three moults; Saunders, however, knew of one that lived fifteen years in confinement. A young Hobby, shot on Lord Lilford's estate, in South Lancashire, by a keeper, followed his pointer when he was Partridge-shooting for a considerable distance, and kept stooping and striking the dog until he was quite disgusted, and came into heel. Lord Lilford termed the Hobby "the most agile and swift of all the Falconidæ with which I am acquainted." In the summer the Hobby is fond of soaring very high in the air; its cry closely resembles that of the Wryneck or Kestrel. Saunders derives its name from *haut-bois*, just as the French name for it *Faucon hobereau haut-bois(r)eau*, from its frequenting large woods.

In plumage the adult male is greyish black upon the upper parts; the two middle tail feathers are uniform greyish black, the others are barred with a lighter colour, the tips are also lighter; the cheeks and moustache are black; under parts white, slightly suffused with rufous, on the breast and flanks are longitudinal streaks of black; thighs and under tail-coverts deep rusty red; cere, and orbital space, pale greenish-yellow; legs orange; claws black; beak horn colour, darkest at the tip; irides dark hazel.

The female is longer than the male; her colours are duller, and the streaks are broader. Length of male 12 inches, of female 14 inches. In young birds the plumage is tinged with rufous.

Family—FALCONIDÆ.

RED-FOOTED FALCON.

Falco vespertinus, LINN.

THIS little Falcon, somewhat less in size than the Hobby, is remarkable for a conspicuous difference in the plumage of the two sexes, and is only a rare accidental visitor in the summer to this country from the far South East, some thirty instances of its occurrence having been recorded. The British Isles lie so far to the west of its habitat that few ornithologists are likely to meet with it unless they seek it in those countries it commonly visits, and in a long experience the writer has never had the opportunity of examining a "British" specimen in the flesh. Of the thirty instances recorded the Eastern Counties have had the largest share, but Cornwall, Devon, and Pembrokeshire have also contributed; in Scotland a single example has been obtained in Aberdeenshire, and one in Ireland. One of two shot in Cornwall is said to have been obtained in February, while one is stated to have been killed at Fordingbridge, in Hants., in January. The appearance of these birds in this country in the winter is so difficult to account for—all the members of the species should be then wintering either in Damaraland in S. Africa, or in India, that it is to be presumed young birds of the common Hobby have been mistaken for it.

The head quarters of the Red-footed Falcon in Europe are in Hungary and South East Russia, where it arrives in the spring. In Asia it ranges through South West Siberia, and in this part of the world there is also a closely allied species, *Falco amurensis*. It is almost exclusively insectivorous, and is gregarious, large numbers may be seen wheeling in the air at dusk,* like Swifts, capturing night-flying moths. The flocks, both in spring and autumn, perform singular aerial dances, something after the manner of house-flies; as Dresser writes "fixing an imaginary point in the air, they will fly straight towards it, then return, and follow continually nearly the same route, never passing certain limits in their flight to and fro." They roost at night as close together as they can, generally on the bare branches of a pine. They also breed in colonies, five or six nests being often met with in the same tree, the old nests of Rooks, Crows, or Magpies

* Hence its specific name *vespertinus*.



RED-FOOTED FALCON ♂ ♀

being appropriated. The eggs are from four to six in number, differing only from those of the Kestrel in being a little smaller in size; in general, being of a whitish ground colour, spotted and blotched with red, while others are as richly marked with dark purple red upon a reddish ground as the handsome varieties of the Kestrel; they measure from 1·6 to 1·25 inches, by from 1·2 to 1 inch. In a large collection of eggs, containing numerous clutches of all the smaller British *Falconidæ*, it will be found that the eggs of the Hobby, Red-footed Falcon, Merlin, and Kestrel run so closely together in their varieties, that unless they were all properly marked it would be quite impossible to separate them, and to assign them to their proper owners, supposing they became by any chance mixed; the same remark has already been made respecting the eggs of the Kites and Buzzards.

Lord Lilford writes of the Red-footed Falcons as observed by him in Corfu: "They seemed to spend the hot hours of the day perched in small clusters on the tall cypresses and few poplars that diversify the lovely scenery of the island; as the day waned these birds might be observed hovering and circling in every direction at a moderate height over the fields and olive-groves, showing a decided predilection for the neighbourhood of streams or ponds of fresh water. They had no fear whatever of human beings, and frequently flew past or hovered within half a gun shot of us as we sat or stood perfectly unconcealed."

The Red-footed Falcon captures its food in the air, and also on the ground, on which it runs with remarkable ease and speed. In its habits it more closely resembles the Kestrel than the Hobby or Merlin, and does not possess the swiftness of flight of those birds. Besides insects it also feeds upon mice and lizards.

The adult male is all over a dark lead colour, which is somewhat lighter on the wings, the quills being silvery grey above, and black beneath; the tail black; belly, thighs, and under tail-coverts rich chestnut; cere and space round the eyes orange red; irides hazel; bill orange at base, dark horn colour at tip; legs and toes brownish red; claws yellowish white; length 11½ inches.

The female is much lighter in colour than the male, having the head, nape, and under parts uniform dull chestnut, without spots, somewhat paler on the throat; feathers round the eyes dark brown; back and tail slate grey, each feather broadly barred with darker grey: the wings are not so silvery grey as in the male, they are chestnut beneath, and the quills are broadly barred with white on the inner web: length 12 inches.

Young birds have the nape and under parts pale buff, the former obscurely and the latter broadly streaked with brown; upper parts slate brown, barred with rufous: bill and cere horn colour; legs and toes paler than in adults: tail barred

with rufous. They closely resemble young Hobbies, but are to be easily distinguished *by a row of conspicuous oblong white spots on the primaries*, which they have in common with the adult females.

Family—FALCONIDÆ.

MERLIN.

Falco æsalon, TUNSTALL.

THIS courageous little Falcon, the smallest species of the British *Falconidæ*, is a frequenter of moorlands throughout the summer, and is to be found not uncommonly in Wales, in the North of England, and in the mountainous parts of Scotland and Ireland, while a few are found occasionally nesting so far to the south as Exmoor. Being a Hawk it is, of course, much persecuted, and is yearly decreasing in numbers. It is resident in this country throughout the year; in the autumn it leaves the high grounds, following the migrations into the lowlands of the small birds it preys upon, and during the winter it may frequently be seen in cultivated districts, flying low over the ground with rapid, skimming flight, beating the sides of fences after the manner of a Sparrow-Hawk, in search of some small bird which, flying before it, is captured in the air. Many of the Merlins thus seen are immature birds that have arrived in this country from the northern parts of the Continent. On the moors, to which it returns late in March or early in April, the Titlark and the Twite are its favourite quarry. It also flies at Snipe, Sandpipers, Golden Plovers, Lapwings, Grouse, and Partridges, occasionally feeding on beetles; while in the winter it is fond of haunting the coasts that it may persecute the *Tringæ*. In Ireland the Merlin will attend sportsmen who are beating the bogs for Snipe, for the chance of a flight at the birds that may be flushed, and often stooping suddenly will carry off their dead or wounded birds.



MERLIN ♀ ♂

The writer once saw a Cock Merlin in pursuit of a Wood Pigeon which took refuge in an elm, but the little Falcon dashed into the tree after it and rattled it out. One day an adult male was brought to him that had struck at a bird-catcher's decoy birds and had been captured in his nets. Young Merlins taken from the nest are easily tamed, and become very docile; they were formerly trained for flights at Larks and Snipes; the female Merlin will fly well at Pigeons. From its being often noticed on the moors perched on a block of stone the Merlin has received the name of the Stone Falcon. In this country it usually nests upon the ground on the open moors, the nest being sometimes placed upon a tussock, sometimes on the bank of a small stream, sometimes among rocks; a hole is scraped which is occasionally lined with a few twigs of heather, loosely put together. It is rare in the British Islands to find the Merlin nesting in a tree; however, Lord Lilford gives an instance of a nest having been found in an oak in a wood in Northants; on the Continent the nest is not uncommonly found in trees, the old nests of other birds being appropriated. There are favourite spots upon the moors to which the birds return year after year to nest; if the pair are shot one year, the next year will find another pair attracted to the same place. Macgillivray states that the Merlin is resident in Scotland all the year round, and says that "should one approach the nest, especially when there are young in it, the Merlins fly around and overhead with great anxiety, uttering shrill cries, but keeping at a safe distance." R. Gray says the Merlin "takes up its quarters in large towns in church towers and other tall buildings, and passes the entire winter among the house-tops where, in fact, it is much safer than in the open fields. I have seen it oftener than once frequenting slated roofs in the heart of the city of Glasgow, and preying upon the Pigeons that are constantly seen dozing for warmth on the chimneys in many of the public streets." Two male birds captured in Glasgow were brought to him, they were as black as soot from the smoke and grime of their roosting places, and on dissection were found to have been preying on Pigeons and Sparrows.

The eggs are four to six in number, somewhat subovate, and vary less in their colour and markings than the eggs of the Kestrel and Hobby; they are reddish in their ground colour, covered all over with dark brick-red spots, and often have a purplish bloom; when they are first laid they have a beautiful violet red tinge with red-brown spots; this, however, soon fades, and they assume a red-brown ground colour with dirty brown spots. The average size is 1·5 inch, by 1·2 inch.

The cry of the Merlin closely resembles that of the Kestrel.

The Merlin is generally distributed over the northern Palæarctic Region, and

is found also on the mountains of central and southern Europe; those to the furthest north migrating southwards in the autumn reach northern and central Africa.

The adult male is slaty blue above, rufous on the nape, with a dark shaft to every feather; rufous on the under parts, with longitudinal streaks of blackish brown; tail with a broad dark band towards the tip, and with traces of other bars on the inner webs; beak bluish, darker at the tip; cere and legs yellow; claws black; irides dark brown: length 10 inches.

The adult female is dark brown above, all the feathers with blackish shaft stripes and edged and spotted with rufous, those on the crown being darkest; hind neck greyish white, with streaks of pale rufous; tail dark brown, with six rufous buff bands, and tipped with buffy white; chin and upper throat nearly pure white; rest of the under parts white, broadly striped with dark brown; under tail-coverts white, with narrow shaft stripes; thighs buffish; length 12 inches.

Young birds resemble the female, but the crown and back are more rufous.

Family—FALCONIDÆ.

KESTREL.

Falco tinnunculus, LINN.

THE Kestrel is, at the present day, the commonest representative of the *Falconidæ* in the British Islands; there is hardly any part of the country where he may not be recognised poised in the air hovering stationary with his head to the wind, presently closing his wings to drop like a stone upon some mouse or beetle his keen eyes have detected upon the ground beneath. He is to be met with everywhere upon the coast, where he nests upon the cliffs, sometimes in close neighbourhood to the formidable Peregrine; he is common upon the moors, as well as in woodlands and cultivated districts; and frequents all the



KESTREL

islands that skirt the western shores of Scotland; in Ireland he is said to be not quite so common. In Northants Lord Lilford considered the Kestrel to be a summer migrant, not to be seen before March, and departing again towards the end of October, a few remaining in mild winters. There is no doubt that the majority of our Kestrels leave us before the commencement of winter for the south, and that those that winter with us are chiefly arrivals from the north of Europe. The Kestrel is largely insectivorous, so that the scarcity of its favourite food during the winter in this country would naturally induce it to wander off to warmer climes where insects could be obtained. However, mice, voles, and small birds are also comprised in its ménu, but in severe winters the Kestrels left with us must be often pushed to find a meal, and during a deep snow the writer has noticed them preying upon Starlings, which being half starved themselves were easily caught. In mild winters Kestrels feed almost entirely upon the common "clock" beetles, as the writer has proved by dissection. In hot summer weather they capture numerous *tipulæ*—"daddy-longlegs"—and may be seen hovering over and pouncing upon them in the dry bents; grasshoppers, caterpillars, earth-worms, frogs, and lizards are also preyed upon; cockchafers, too, are largely devoured, being caught in the air with their feet, and eaten while they are on wing. At the time the Kestrel has a hungry brood to cater for, its nest is a dangerous neighbour to the Pheasant coops, as it will not hesitate to carry off the young Pheasants, and it will occasionally seize young Partridges; but having admitted so much as this, the writer would confidently appeal for its general protection as a useful bird, of much service to the agriculturist, besides being a great ornament to our landscapes.

In captivity the Kestrel bcomes very docile and affectionate; one the writer possessed that was allowed its full liberty, "flying at hack," as falconers term it, about the house, would fly across a large meadow to meet him, perching upon his shoulder, evincing the greatest delight by screaming loudly. Knowing the time the greenhouse was usually watered, the bird would be on the watch to fly in at one of the windows, when, settling on the ground, he would raise his feathers, shake his wings, and look up, plainly asking to be watered, and was then indulged in a shower-bath through the rose of the watering can. In his extreme youth he had been brought up with a kitten for his companion, and the two friends had many a game at hide-and-seek among the flower-beds on the lawn, the Hawk pouncing out upon the kitten, the kitten in turn making sallies upon the Hawk. When the Kestrel was fed he would first hover his wings over his food, screaming loudly, and the kitten, understanding the meaning of his cries, would often rush up and rob him of his meal.

The Kestrel very commonly lays its eggs in an old Crow's nest, making no additions to it; however, Seebohm states that an old Raven's nest from which he took five Kestrel's eggs had been elaborately repaired; the writer once witnessed a fight between a pair of Kestrels and a pair of Carrion Crows that was maintained for several days for the possession of a nest in a tall hedge-row elm, the victory at last fell to the Crows. Ledges of cliffs overhanging the sea provide a favourite site, where a slight depression scratched in the earth suffices; so do old ivy-clad buildings and quarries; hollow trees are occasionally made use of; a friend of the writer's who put an old cask in a tree had it occupied year after year by a pair of Kestrels; and the writer has known of two hen Kestrels being joint tenants of the same nest. Kestrels will breed in confinement, but will show the vitiated instincts superinduced by their unnatural state by devouring their young.

The eggs, which are not laid until sometime in May, are from four to seven in number, and vary greatly in their markings; the average type has a reddish ground, spotted and blotched with brick red; other eggs are handsomely marked with blotches of purple-red on a reddish ground, and resemble miniature eggs of the Honey-Buzzard; others have a few large blotches of dark red on a white ground; others are ochreous-white with numerous minute dark spots, and are not to be distinguished from typical eggs of the Hobby; indeed the beautiful varieties of the eggs of the Kestrel are among the joys of the oologist; in shape they are subovate, varying much in size, and measure from 1·67 to 1·42 inches, by from 1·36 to 1·2 inches. Of the nine eggs figured upon plate xii, seven are taken from the writer's cabinet; the pretty variety with the lilac shell markings, No. 333, is from an egg in the possession of Mr. Frohawk; the very abnormal round egg, No. 337, was found with two others of the usual size in the tower of Leverton Church, Lincolnshire, by the Rev. W. Wright Mason.

The Kestrel is found throughout the whole of the Palæarctic Region, migrating in the autumn in large flocks into Central Africa, some few going as far south as Damaraland, where, during the winter, they feed chiefly upon locusts.

Gätke says that the Kestrel visits Heligoland in great numbers, and is known to the islanders as the Beetle Hawk, arriving in March, April, and May, on its northward flight; young birds appear first on the return migration about the middle of August, followed by old birds throughout September and October.

The adult male is bluish grey on the head, lower back, and tail; the tail has a broad subterminal band of black, with a white tip; on the head are some dark shaft streaks; the rest of the upper parts are pale buffish red, with small triangular spots of black; wings blackish-brown, with lighter edges; breast and belly pale fawn colour; dark streaks on the former and dark spots on the latter;

thighs and under tail-coverts rufous fawn colour, unspotted; under surface of tail greyish-white; beak blue; cere and orbital space yellow; irides dark brown; legs yellow; claws black. There is a light buff space below the eye, and the black moustache is not so distinctly marked as in the other Falcons: length 13 inches.

The female is reddish-brown above, barred transversely with bluish-black; wings darker than those of male; the whole of the under parts paler; length 15 inches.

Young birds resemble the female, but are a little paler; the blue head is the last to be assumed as they reach the adult plumage.

Family—FALCONIDÆ.

LESSER KESTREL.

Falco cenchris, NAUMANN.

THIS is a smaller species than the Common Kestrel, and is an abundant summer visitor to the southern countries of Europe. Besides the two occurrences mentioned by Saunders, one in Yorkshire, the other, an adult male, captured alive near Dover, two others have been obtained in Ireland, another in the Scilly Isles, and a very small female Kestrel, examined by Mr. E. H. Rodd, in Cornwall, may have been another, while in the autumn of 1895 the writer was informed of one that had been picked up dead near Newport, in Monmouthshire. It is very probable that other examples have been procured in this country, and have not been recognised. The *white claws* of the Lesser Kestrel are its best distinguishing marks; the adult male also differs from the adult male Common Kestrel in having no black spots upon its red back.

Family—FALCONIDÆ.

OSPREY.

Pandion haliaëtus, LINN.

THE Osprey, or Fishing Eagle, used to be a far from uncommon visitor in the spring and autumn to the large estuaries all round our coasts, and was most numerous at the latter season when the majority seen were young birds of the year. To-day it can only be regarded as rare indeed, although one or two decades since it was frequently observed about Poole Harbour and the mouth of the Hampshire Avon, and on the estuary of the Exe, in South Devon. At the beginning of the present century Montagu regarded it as more common in Devonshire than in any other part of the kingdom, and the writer has examined specimens captured in Tor Bay, on Slapton Ley, and on the Exe, in more recent times. He has also seen some very beautiful Hampshire specimens in the fine collection of British Birds formed by Mr. E. Hart, at Christchurch. The only records of the Osprey having nested in the South of England refer to eyries in Devonshire and West Somerset. As late as 1838 a pair of Ospreys nested in Gannet's Combe, on Lundy Island, while in 1847 a pair that had attempted to nest at Monksilver, in West Somerset, were shot by a keeper. Polwhele, in his History of Devon, says that about forty years before he wrote (in 1797) a single pair of Ospreys bred on a pinnacle of the cliffs at Beer every year, arriving in April and leaving in August. The Osprey was called in that neighbourhood a "Herriot," and the rock this pair built on was known as "Herriot Hill." He also speaks of it as breeding on the coasts of North Devon. In the estuaries of Sussex and Hants, the Osprey goes by the name of "Mullet Hawk," from its partiality to that fish. A favourite station for the bird, on which it would be often seen perched was provided by the stakes set in the mud to mark the channel for ships in the tideway of the river Exe and other rivers. The Osprey feeds exclusively on fish, and is never met with far from the sea-side or from inland waters in consequence, but instances are on record in which it sought variety from its usual diet. Thus, an Osprey was caught a few years since in a trap at Powderham Castle, the beautiful seat of Lord Devon, by a keeper who had noted a large Hawk flying in from the Exe and carrying off his young Pheasants; the keeper



OSPREY ♀ ¼

blew the bird in pieces with a shot from his gun while it was in the trap, but the writer saw the head and feet which were those of an Osprey. Another is stated to have been caught in a trap baited with a rabbit, and Montagu saw an Osprey swoop down and carry off a young wild Duck on Slapton Ley; "the Duck, by struggling, fell from the talons of the Eagle, but was again recovered before it reached the water." The Osprey poises itself, hovering like a Kestrel, while searching the water beneath for food, which it catches in its claws, flying off with it to devour on some favourite perch. Its feet are adapted to the capture of fish, the outer toe is reversible, the claws curved and sharp, and the soles of the feet are rough and papillate, all assisting it to catch and grasp the slippery prey; from their peculiar structure the claws are not easily withdrawn when once they are inserted, and this sometimes costs the bird its life when it has seized some fish too heavy for it to lift, which has dragged it beneath the water, and drowned it.

Lord Lilford writes:—"the appearance of the Osprey on wing is most singularly graceful, the long and, comparatively speaking, narrow wings, and the peculiar angle at which they are spread whilst the bird is hunting for its prey, distinguish it at any distance from any other European species. Although this bird very frequently hovers for a second or two before making its stoop, it generally dashes at its quarry from a certain height, and often seems simply to lift it from the water in its talons. On the other hand, it is common to see the Osprey plunge headlong below the surface for an instant; I need hardly say that it does not pursue fishes under the water. The method of the Osprey differs from that of the Falcons in this particular, that whereas the latter birds on missing their quarry at the first stoop, almost invariably mount before making a second, the present bird, if its intended victim moves during the stoop, checks its flight for a moment, and makes another attempt from the lower pitch." The Osprey prefers shallow waters to fish in, and is sometimes noted on the Norfolk Broads searching for flounders in the muddy creeks, "following the course of the channels, and fishing in exactly the same manner that Gulls may be noticed when picking up the floating refuse in a tideway, the only difference being that a Gull seizes the food with his beak, while an Osprey grasps it in his claws."* Lord Lilford found the great lagoons of Sardinia, Corsica, and Tunis, to be favourite resorts of Ospreys. In this country large sheets of water in parks and inland meres are occasionally visited.

At the present day the Osprey is rare even in Scotland, where it was once to be found by many of the lochs, and now only nests in one or two closely-guarded places in the Highlands. A Scotch fir is the favourite tree on which it

* From "Rough Notes," by Booth.

places its bulky nest; ruins on islands in lochs used also to be occupied, and rocks that were near to the water. A good account of the singular nest, which is built in the form of a truncated cone, has been given by Wolley, who states that in its shape it not a little resembles the great nest of the wood-ant, the sticks project very slightly beyond the sides, and are built up with turf and other compact materials; the summit is of moss, very flat and even; and the cavity occupies a comparatively small part of it. The eggs are laid at the end of April, or in the beginning of May, and are three in number, rarely four, and are the most beautiful eggs produced by any of the *Falconidæ*. Their ground colour is creamy or buffy white, and on it are large blotches of rich chestnut red, or claret colour, with underlying shell markings of purplish grey; some of the eggs are marbled all over with purplish red and white; others are creamy white with the smaller end covered with rich chestnut; there are numerous varieties, all handsome; some of the eggs are rather pointed at one end; others are elliptical; they vary in size from 2·68 to 2·17 inches, by from 1·94 to 1·64 inches. The female rarely leaves the nest while she is incubating, and is fed with fish brought her by the male. The eggs figured on plate xiii are from the writer's cabinet; it was hard to make a selection, but it is believed that those given are typical.

The Osprey is found in most parts of the world, never far distant from water; it is dispersed throughout Europe, Asia, North America, Australia, Tasmania, New Zealand, New Guinea, most of the islands of the Malay and Indian Archipelagos, and over the continent of Africa. In North America where it is abundant and regarded as a sacred bird by the fishermen, because flying out to sea it points to them where the fish are congregated, it is gregarious at the breeding season. As many as three hundred nests have been counted on one island near the eastern extremity of Long Island, New York.

The cry of the Osprey is very musical. Wolley states that Ospreys are very constant in returning year after year to their old stations, and even after one or both birds have been killed in the previous season, he had frequently seen individuals flying near the now deserted eyrie.

The adult male has the head white, broadly striped on the crown with blackish brown, which colour forms almost a patch before and above the eye; ear-coverts and a stripe to the hind neck blackish-brown; feathers on back of head and nape elongated, lanceolate, washed with yellowish, and some terminated with blackish-brown; upper parts dark brown, with a faint purplish gloss; tail dark brown; under parts white; the breast faintly marked with pale brown and dull ochreous brown; bill blackish horn; cere blue-grey; irides bright yellow; legs pale lead-blue; claws black; length 22 inches. The feathers on the thigh are much

shorter than is usual with the *Falconidæ*, and so better adapted for immersion.

The female is like the male, only somewhat darker, and has a broad brown band across the chest, and is rather larger; length 24 inches.

Young birds have all the feathers on the upper parts conspicuously edged with white; their tails are more strongly barred than in the adult; they do not assume the full plumage until the third or fourth year.

ORDER STEGANOPODES.

THE term *Steganopodes*, (derived from two Greek words signifying covered feet), is applied to the comparatively small group of birds, with dense plumage, in which all the four toes are united together, from tip to tip, by a web—the special character from which they receive their designation,—and in which the young are hatched with their eyes sealed and the body naked, requiring, therefore to be fed, in the nest, till they are fully fledged. The squabs, in a short time, become covered with a thick fluffy clothing of cradle-down, which, in a few weeks, gives place to feathers. The nostrils are rudimentary or abortive; a throat-pouch is generally present and featherless; the adults nest, near water, on rocky ledges, on trees, or on the ground; and their eggs are few, unspotted, and chalky in texture. The birds of this group have the body often covered with large air receptacles under the skin, in direct communication with the respiratory system.

This Order includes the true Pelicans *(Pelecanidæ)*; the Tropic-birds *(Phæthonidæ)*; and the Frigate-birds *(Fregatidæ)*; as well as the Darters, or Snake-birds *(Plotidæ)*; the Cormorants *(Phalacrocoracidæ)*; and the Gannets *(Sulidæ)*. Of these families, representatives of the first and of the three last are, or have been, alone found in Britain. In his Illustrated Manual of British Birds, Mr. Howard Saunders includes the members of the two latter families under the *Pelecanidæ*; but the Cormorants and Gannets are now generally recognized as constituting families distinct from each other, and from the true Pelicans.

The *Plotidæ*, or Darters, often called Snake-birds, constitute a very small, well differentiated family of some four species, of which one inhabits S. America, and another the African Continent; a third occurs in Australia, and the fourth throughout the greater part of the Indian region. If they be compared with the

more familiar Cormorants, their bodies are more slender, the neck is thin and longer, and the beak long and very acuminate, its margins being set with backward-pointing serrations. The wings are long, and the tail, in which there are twelve stiff feathers, is long and rounded; the skin round the eye is naked. The legs are set far back, so that the bird when sitting assumes an erect posture.

The *Phalacrocoracidæ*, or Cormorants—which in number of species constitute nearly half the Order—are distinguished by their very short upper tail-coverts, and the unusually rigid shafts to the feathers of their rather long and fan-shaped tail; by their legs being set far back, which gives the birds their peculiar upright position; by the outer toe exceeding the others in length, and the middle one having a serrated claw; by the strongly hooked beak and the absence—though the bill has a long nasal groove—of nostrils in the adult. Their wings are proportionately shorter than in the members of the other families of the Order, while the throat-pouch, such a marked character in the Pelicans, is but slightly developed, and is either naked or encroached on more or less by feathers. Cormorants' eggs are rough and chalky, with a bluish underground seen between the chalky patches, but are never spotted. The sexes are alike in plumage.

All the Cormorants fly well, but they are more at home in the water than in the air. They are expert swimmers and splendid divers, descending occasionally to great depths in quest of their food, which consists almost exclusively of fishes. They are devoid of the air-sacs under the skin, possessed by other members of the Order.

Their distribution is world-wide. Of the fifty species described up to the present, three are European, and only two are British. Beautiful as are the European species, they are far excelled by the pure white-breasted forms in S. America, S. Africa, and Australasia.

The *Sulidæ*, or Gannets, are distinguished by having the middle pectinated toe equal to, or exceeding, the outer toe in length. Two groups are recognized in the family—the White Gannets and the Brown, better known as Boobies. The latter are more numerous in species than the former, and are distributed round the warmer latitudes of the globe, while the White Gannets are found breeding only in higher latitudes. In the northern Hemisphere, there is but one species of White Gannet or Solan-Goose; in the southern Hemisphere, however, there are two, one with its habitat at the Cape of Good Hope *(S. capensis)*, the other *(S. serrator)* on the coasts of the Australasian seas. The Gannets are further distinguished by having a strip of bare skin down the throat—absent in the Brown Gannets, however; by the bill, which is longer than the head, being less hooked than among the Cormorants, and the tongue aborted, while the wings and tail

are long and pointed. The legs are not set so far back as in the *Phalacrocoracidæ*. The Gannets agree with the last mentioned family in the slight—even slighter—development of the throat-pouch (which is naked); in the nostrils being closed in the adult, though patent in the young; and in their eggs being rough, chalky, and unspotted. Although the *Sulidæ* have but a small throat-pouch, their gullet is capable of great distention, so that they are able to swallow fishes—on which they almost exclusively feed—of considerable size.

There are no representatives of the restricted family *Pelecanidæ* now to be found in England, nor have there been any authentic records in recent times of the occurrence in this country, of any which had not escaped from confinement. In 1868, however, Professor Newton exhibited to the Zoological Society of London the humerus (wing-bone) of a Pelican, found in the peat of the Cambridgeshire fens; and again, in 1871, he exhibited a second wing-bone in that year, found buried in Feltwell Fen, Norfolk, "thus proving the former existence of the bird in England at no very distant period." The fact of the former bone having belonged to a young bird, "points to its having been bred in this country. It is possible, from its large size, that it belonged to *Pelecanus crispus*," which now inhabits S. Europe and N.E. Africa.

HENRY O. FORBES.
ANNA FORBES.

Family—PLOTIDÆ.

THE AMERICAN DARTER.

Plotus anhinga, MARCGRAVE.

SOME forty-six years ago (in 1851) a male specimen of the American Darter was captured in the month of June, near Poole, in the county of Dorsetshire.

In general colour the Darter is black, flushed with green, with a narrow line of white hair-like feathers along each side of the neck; the wing-coverts, and the elongated scapulars conspicuously marked with white. The female is similar, but less bright, and has the head, neck, and breast buff, with a narrow chestnut band below. A most interesting point in the anatomy of the bird's neck has been described by the late Mr. W. A. Forbes—a very talented ornithologist, whose accomplished work, when he died at the age of only twenty-eight, gave the brightest promise for a brilliant future. Some of the vertebræ of the neck are so placed, in relation to the others, as to form a "kink," while the neck muscles are so disposed as to give the bird the power to dart forward its head, with great ease and swiftness, after the fishes which form its prey.

The Darter is to be sought for—though it is another thing to catch it,—along the wooded banks of rivers, and by tree-studded swamps and marshes, or in just such haunts as are frequented by Herons. It is a night feeder, and during the day it sits on a stone or stump, either sleepily resting in the sun, or standing erect with expanded wings.

It gets its name of Snake-bird from its habit of swimming with its body quite under water, and its head and neck, alone above the surface, jerking backwards and forwards rhythmically, with the swift progress of its body, till it comes near enough to its prey, when the head and neck suddenly disappear, (darted out by the curious mechanism above described), to reappear in a few moments with a fish transfixed on its spear-like beak. Its diving and subaqueous swimming powers are probably unexcelled by any other water-bird.

The Darter builds, either alone or in companies, in trees, on a branch a few feet above the water, a nest of sticks and grass or moss, in which it lays three or four eggs. These appear to be white, from an external chalky layer overlying a greenish-blue shell. The young are hatched helpless, and covered with down.

The Darter is docile, and with little training it becomes very sociable. The Indian species is constantly carried about by the natives on their river boats. In the Zoological Gardens in London there is very often a species to be seen in captivity, and its diving powers in pursuit of fishes at feeding time, forms one of the most interesting sights in that celebrated menagerie.

Family—PHALACROCORACIDÆ.

THE CORMORANT.

Phalacrocorax carbo, LINN.

THE geographical range of this handsome species, which is by preference a sea-loving bird, is very wide. It breeds along all the coasts of Europe, including the Færoes and Iceland, as well as by suitable marshes, lakes, and rivers, often hundreds of miles from the sea. In most parts of the Asiatic Continent it is a resident, and it is to be met with in nearly all the islands of the eastern Archipelago. One of us has noted its nesting places by the rivers in the interior of Sumatra, and on the trees bordering the elevated lake in central Buru. In Africa it breeds in many localities north of the Sahara, and probably also in South Africa as well, although its eggs have not yet been taken there. It is a resident, a prolific breeder, and a voracious destroyer of the introduced fishes, in New Zealand and Tasmania; in Australia it is only less abundant. It ranges all along the eastern shores of N. America, from the south of Canada to as far north as Greenland. Beyond the breeding range here roughly defined, the Cormorant is found as a winter migrant, by the coasts, lakes, and rivers of many districts in all those Continents, where fish is abundant.

In the United Kingdom it breeds wherever a suitable site presents itself; on ledged rocks on the coast; on an ivy clad ruined wall (as at Castle Carra, in Co.



CORMORANT

Mayo); in high trees near the sea, or even far from the coast, generally near well stocked rivers and lakes. Mr. H. Seebohm mentions an interesting colony of Cormorants on trees, which he saw on an island in Lough Cooter, near Gort, in the south of Galway. It was ten miles from the sea, and there were fifty nests built on lofty trees. If there be no rocks or high trees, or the country be flat, in a locality which they have selected as suitable, they will place their nest on the ground, in pollard willows, in low bushes, or even in swamp tussocks "just above the surface of the water," as Sir Walter Buller has recorded of them in New Zealand. Dr. Sclater and the late Mr. W. A. Forbes found them in Hoorster Mere, in Holland, building on a circular space, perhaps fifty yards in diameter, cleared of reeds, in which the Cormorants nests stood thick together on the swampy soil. The Cormorant, which invariably nests in communities, forms, when it builds by the sea, its nest of sea-weed, from one to two feet in height, only slightly hollowed out, and lined with any green leaves it can collect in the vicinity. When these birds build on the ground or on trees in inland situations, the structure consists of piles of sticks, and reeds, with green grass, often added to, from year to year, till it attains to several feet in height. Extensive areas or patches, on and beneath the rocks, of greenish-white excrement, (fatal to all vegetation coming in contact with it), and its disgusting odour, mingled with that of the decaying regurgitated fragments of fish, that exclusively forms their food, invariably localise the site of a Cormorant rookery.

The date of their nesting varies somewhat with the season, but as a rule they begin to build, or patch their old dwellings, during April, and have finished laying generally by the end of May, or before the middle of June, at latest. The eggs, elongated-oval in shape, and numbering from four to six, are white, rough, and of a soft chalky consistency, with a pale greenish-blue underground, which can be seen only when the eggs are newly laid, and before they become covered, as they very soon do, with excrement and dirt. Both parents take a turn at sitting, which lasts for a lunar month. If the nest of a pair be robbed, they will occasionally replenish their home by stealing a "sitting," from the unguarded nests of their neighbours. But woe betide them if they are caught! The young squabs, which are hatched with sealed eyelids, have bluish-black naked bodies, brown feet, and horn coloured beaks. The birds then assume separate duties. The female covers and protects her brood; while the male fetches food both for his mate and the young, each of whom in turn thrusting its head right down into his gullet, seizes the half digested morsels as he disgorges them.

After their first moult, the young Cormorants are brownish-black, slightly washed with green above, and dirty-white beneath, with flesh-coloured bills

and dark brown feet. After their next autumn moult, when the birds are somewhat over a year old, more of the metallic sheen, which will mark their maturity, appears on the upper surface, and the white on the under side is less. After one or perhaps two more moults, the latter finally gives place to black, glossed with splendid metallic green. In its winter garb, the mature Cormorant,—male or female, for the plumage of both is the same,—is a magnificent bird. The upper surface is deep black, glossed with bronze, each feather margined with a darker metallic border, the back generally presenting rich metallic green, or purple, reflections, varying with the incidence of the light, and the position of the eye. The wings and the tail, in which there are fourteen feathers, are also black, washed with metallic green; throat, and sides of the head, white; rest of the head, the neck, breast, and belly, deep glossy purplish black, washed with metallic green; bill more or less dark horn colour; legs and feet black; bare skin of face and throat, and base of bill greenish yellow; eyes rich sparkling bronzy-green.

In the early spring, the birds begin to add, without a moult, to their already splendid winter garb, the nuptial adornments of a large white patch on each thigh, and a number of beautiful, elongated, slender white feathers on the top of the head, and along both sides of the neck. These are all, however, cast again as soon as their home is well established, or even, perhaps, before the nesting time.

The Cormorant, though a shy and wary bird, being, when taken young, easily tamed, does well in captivity, and will reward kindly treatment with much affection. It is also a very intelligent bird, and has been for centuries employed by the Chinese to fish for them—a strap being tied round the neck when the birds are so engaged, to prevent them swallowing their captures. This practice which was introduced into England in the reign of Charles I, became a royal sport, in charge of a "Master of Cormorants," a high office of the Household; but it gradually fell out of repute. The pastime was, however, revived a number of years ago by Mr. F. H. Salvin, the well known Falconer, who keeps a number of birds, and has described, in the *Field* for 1890, how to train Cormorants to fish properly.

"You must," he says, "put on a fencing mask, ear lappets, and gloves to prevent their biting, and attach noose jesses to their legs for the purpose of putting them down and taking them up from the ground, all of which helps to tame them, especially if long drills are given them during the morning and evening. Cormorants' necks being very strong and elastic, these birds may be handled by the neck without jerking or roughness. When sufficiently tame, you begin to train them; for which end you put a small one-buckled strap on their necks, which must not be buckled too tight, and having supplied a large deep

tank with water and fish, you put the birds in, and so entice them to fish, rewarding them by removing the strap and giving them a bit of fish. These lessons, especially with the example of an old hand or 'make bird,' will soon get them ready for the brook or pond * * * *. They will go at any sort of fish, but perch are apt to hurt them with their large dorsal fins, unless they have their straps off. If there are no fish in the place you are 'drawing,' they will let you know this by flapping their wings. To make young birds hold fish, strap all your birds and give one a fish of some size, and you will find he will keep it down to prevent being robbed by the others. The best way of keeping trained Cormorants, is to place large stones in a yard littered down with straw, and supplied with a bath, for they wash after feeding. From this yard there should be a warm open shed, also supplied with large stones for them to sit upon if they like to retire there. This place must be either walled in, or fenced in, with upright palings, for I have found that, otherwise, they can pull themselves up with their bills in parrot fashion, and so get out. They should only be fed once a day, allowing them a 'full gorge' on Saturdays, occasionally when you are not working them, for when you are using them, they require to be underfed."

The Cormorant walks badly on land, but as a diver it has few equals, except perhaps the Darter and the Penguin, progressing under water by means of its feet, if not by both feet and wings. "The activity the bird displays under water," remarks Professor Newton, "is almost incredible to those who have not seen its performances, and in a shallow river scarcely a fish escapes its keen eyes and sudden turns." It flies rapidly, but rather heavily, with its neck outstretched, and its legs extended under its tail.

Cormorants are extremely voracious and "full of glotonie," and "when gorged or when the state of the tide precludes fishing, they are fond," as Professor Newton observes, "of sitting on an elevated perch, often with extended wings, and in this attitude they will sit motionless for a considerable time, as though hanging themselves out to dry, but hardly, as the fishermen report, sleeping the while. It was perhaps this peculiarity that struck the observation of Milton, and prompted his well-known similitude of Satan to a Cormorant," who

> "On the tree of life
> The middle tree and highest tree that grew,
> Sat like a Cormorant,"

"but when not thus behaving, they themselves provoke the more homely comparison of a row of black bottles."

The Cormorant lives to a considerable age. A bird belonging to Mr. Salvin, attained to twenty-three years, and was the progenitor of the first Cormorant bred in captivity in England.

Family—PHALACROCORACIDÆ.

THE SHAG.

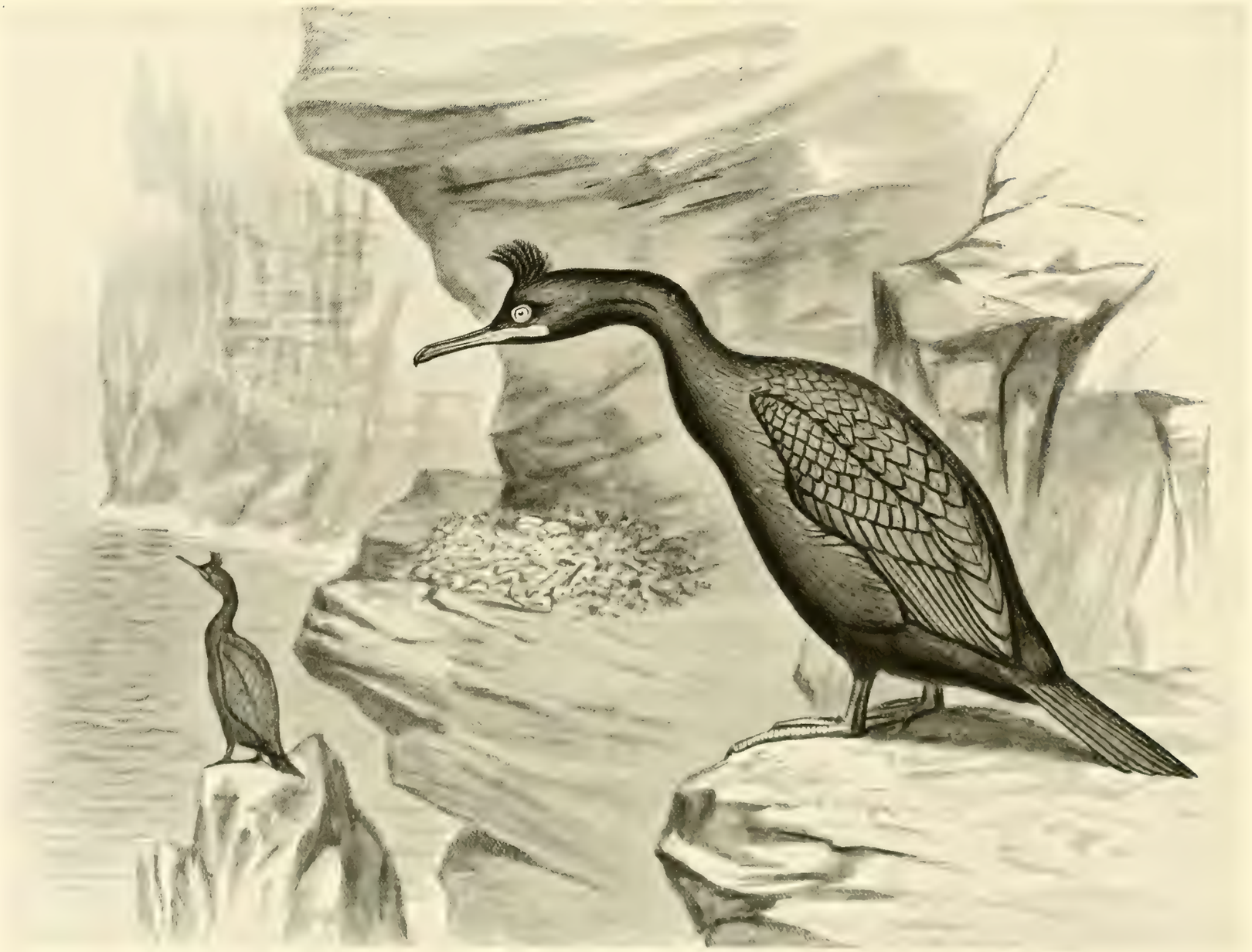
Phalacrocorax graculus, LINN.

THE Shag, which is a considerably smaller bird than the Cormorant, has a much more restricted geographical distribution. It may be said, generally, to occur in Iceland and the Færoes, and, with the exception of those of the Baltic, all round the coasts and Islands of Western Europe, especially where they are rocky. It occurs in eastern Morocco, along the northern shores of the Mediterranean, and on the coasts of Asia Minor, but it rarely makes its appearance in the Black Sea.

In the United Kingdom, it is specially numerous in the Orkneys, on the western shores and islands of Scotland, and in the Hebrides. In the Isle of Man, the Channel Islands, and the Farne Islands, the Shag is found in large numbers. On the English mainland it is abundant on the rocky coasts of Northumberland and Durham; but it is absent from, or rare on, the south coasts of England. In Ireland, it is found round all the coasts, especially on the rocky and cave-indented cliffs of its northern shores.

The Shag is truly a marine species, keeping to the sea coast, being very rarely seen far inland, or by fresh water lakes, or even rocky and fish-abounding rivers. It is not so gregarious a bird as the Cormorant, and its colonies, where it is a permanent resident, are smaller; it is much more local also in its distribution, occurring here and absent there, for no apparent reason. The haunts of its choice, are the caves and fissures of rocky headlands, and unfrequented islands, on whose ledges it loves to sit and to nest.

Though very similar in general appearance and in habits to the Cormorant, it is easily distinguished by its smaller size and its shorter wings. The bare skin of the face is rich yellow; the eyes are sparkling bronze green; and the general colour of the plumage is dark, and of a rich glossy bronze and green, richer on the head and neck than elsewhere. This rich gloss, however, fades rapidly from the plumage after death. The margins of the back feathers are deep velvety black; and the tail has twelve feathers in place of fourteen, as in the Cormorant. In the breeding season, while it does not assume white filamentary plumes on the



SHAG

top of the head and sides of the neck, or a white patch on the flanks, as the Cormorant does, the Shag puts on—and then it is one of our handsomest birds—a large green crest curved forward on the top of the head, which is shed, however, as are the nuptial ornaments in the former bird, when the mating season is over, and the labour of incubation has commenced.

The Shag breeds in the end of April, or the beginning of May; the nest being always placed on a ledge, or a cliff face, or by preference in the dusky interior of a cave, if one is to be found in the neighbourhood. The bird is gregarious; and the site of the nests, which are usually placed close together, is easily detected by the white streaks, and patches, of evil smelling excrement, which smear the rocks below them. The nest is rude, flat, or but little hollowed out. and generally large, but as a rule less than the Cormorant; yet, on the other hand, it may be very scanty. It is chiefly composed of sea-weed, substantial twigs, (probably picked up at sea), heather stalks, grass, and rushes.

As a rule the eggs number three to four, but as many as eight have been recorded. In this case, it is not improbable that two birds had laid in the same nest. The eggs are smaller than those of *P. carbo*, and indistinguishable in colour; but it would be impossible to tell a large Shag's egg from a small Cormorant's. The young emerge from the egg, after twenty-six to twenty-eight days incubation, as naked purplish-black squabs, which soon become covered on the back, and sides of the body, with a soft, somewhat sparse, sooty-grey or brownish-black down, which in seven or eight weeks gives place to the full plumage.* Till then, the young birds continue in occupation of their cradle, (sometimes, along with eggs laid at a late period), being assiduously fed, as among the Cormorants, with fish disgorged by the parents, which they voraciously devour. In its first plumage, the Shag has a light breast, a slender bill, and the back brown, with a flush of the green of later moultings. The Shag is supposed to be three or four years of age before reaching full maturity, and its magnificent adult plumage. It moults in the autumn. After this season, the head and neck of the adult is black, richly washed with metallic-green; the wings and tail duller; the wing-coverts, shoulders, and back are edged with black; the eyes are brilliant bronzy-green, and the bare skin of the face, and round the eyes, is black. In the early spring, this handsome plumage becomes even more splendid. In January a crest of re-curved feathers surmounts the top of the head of both sexes, while the bare skin of the face changes to rich yellow. The crest continues during all the courting season; shortly after nest-building has commenced it begins to be shed, and early in May it has

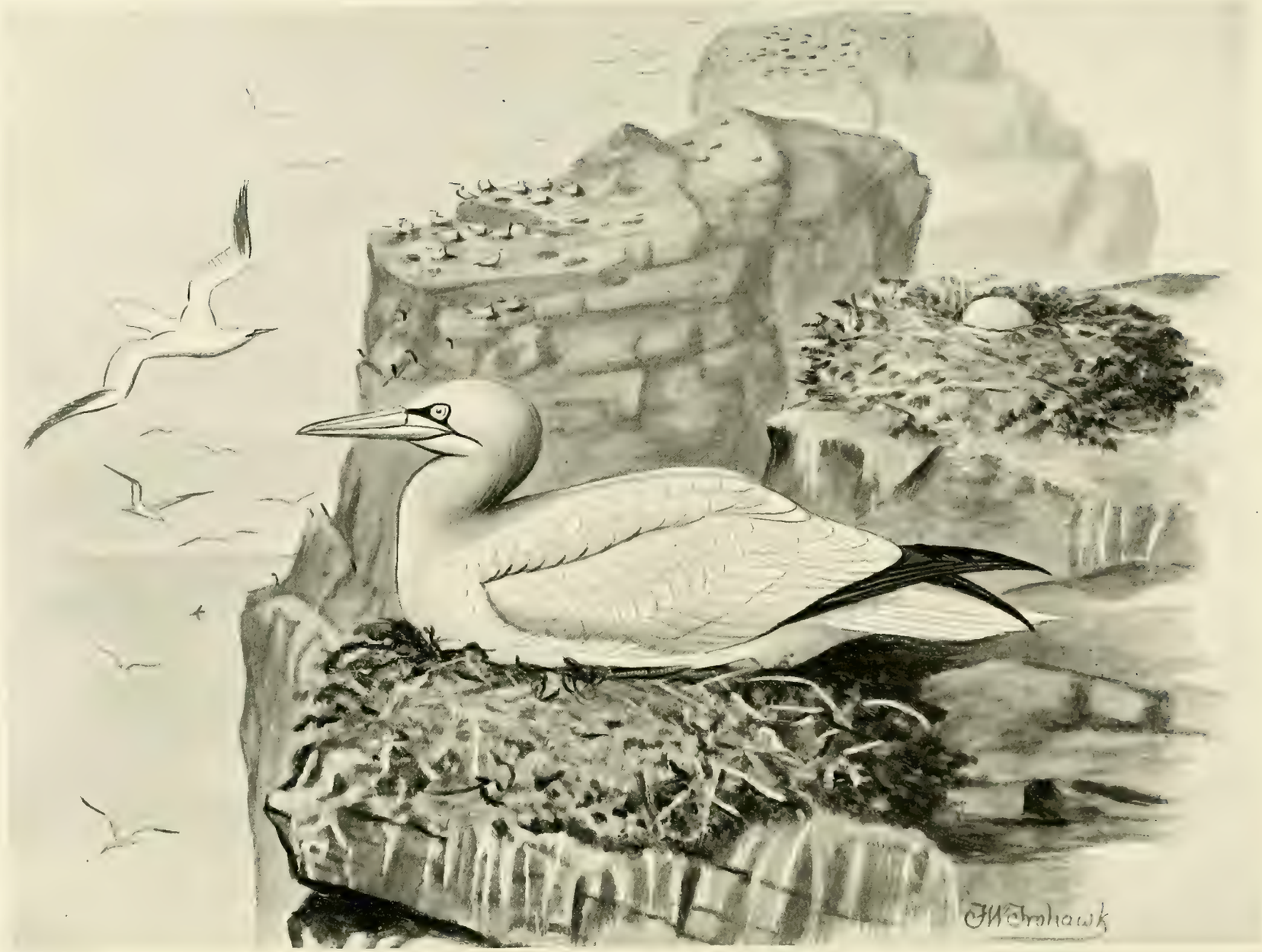
* An instance has been recorded in which the down had in nine days only given place to feathers, and the wings had grown.

quite vanished. In place of the crest feathers, others short and uncrested come in; but in no other part of the body is there a moult at this season. During the spring, birds of the second year, may be seen with a crest, although they are not yet breeding.

The Shag is less migratory than the Cormorant, and as a rule remains near its breeding places all the year through. They are to be seen at all seasons sitting, generally in silence, with outstretched wings, on the rocky ledges of their home. Thence when alarmed, or urged by hunger, they drop into the water, after a short flight, rather awkwardly, sometimes tail first as if falling, and in an instant disappear beneath the surface. Once there, they are in their element; for their subaqueous powers of progression, in which both feet and wings are requisitioned, (whether used in quest of piscine food, which they bring to the surface to swallow, or to escape from pursuit), rival in agility and speed those of the Penguin. To catch sight of the bird's reappearance on the surface, the eye must keep a wide and clear look out, for it is impossible to predict the—often great—distance it may accomplish, or the direction it may take; and then it stays but a moment to make a frightened and hasty survey, before diving again. The Shag apparently dives to great depths, for Mr. Howard Saunders records an instance of an individual being taken in a crab-pot 120 feet down. "When swimming," says Mr. Seebohm, "they sometimes spread out their wings and hold them so for a considerable time. When rising from the water they splash the surface with their wings and feet, seeming to get into the air with difficulty. As evening approaches, the Shags, in silent strings, speed along, just above the surface of the sea, to their roosting places."

The Shag is rarely kept in captivity, and it does not appear ever to have been trained like its congener, the Cormorant, to catch fish for its owner.

Mr. Charles Doncaster, in a letter to the late Mr. Henry Seebohm, describes a coasting excursion made by him, round the cliffs of Hoy, in the month of June, when he saw immense numbers of Shags in every stage of plumage. "I saw one," he says, "upon its nest which looked almost accessible, and, with stockings only on my feet, managed to reach it. The bird when she saw me made most amusing menaces; she seemed to be trying to throw her head off at me, and erected the little bit of crest which she had remaining from the full spring plumage. The nest, when I reached it, was much like a Cormorant's, both in material and smell. I found two young ones very recently hatched, the broken shells being close by; they were naked, blind, and dark slate coloured. The Shag is much more common here than the Cormorant. They are clumsy in diving from the rocks, seeming to go into the water anyhow; one I saw plunge nearly tail



GANNET ♀ ⅕

first! It would be hardly possible for an ornithologist to have a finer boating excursion, at least in Great Britain, than that round Hoy head in the breeding season."

Family—SULIDÆ.

THE GANNET.

Sula bassana, LINN.

THE Solan Goose, as the Gannet is very often named, is one of the most splendid members of the British *avi-fauna*. It is a large, heavy, goose-like, marine bird, with a long conical bill, and long and pointed wings. When fully adult, its plumage, in both sexes, is pure white, tinged with buff on the head and neck, with the outer edge of the wing and its primary quills and their coverts black; the nude skin of the throat, and round the eye, dark blue; the iris yellowish white; the frontal shield bright green; the bill horn colour, with dark blue lines; and the legs and feet black.

The Gannet is not a common bird; its habitats and breeding places are few, far apart, and difficult of access. In South Britain, these are Lundy Island, off the coast of Devon; and Grassholm, off the coast of Pembrokeshire. In former times the Farne Islands, on the Northumberland coast, were a constant resort; for we find it recorded that Sir Thomas Swinburne, High Sheriff of Northumberland, gave ten shillings to his "cosen William Read's man's man for sea fowle (Eider Ducks and Solan Geese) out of the Ffarne Yland," during the assize week, in the year 1628. In North Britain its homes are Ailsa Craig, at the entrance to the Firth of Clyde; the Bass Rock, in the Firth of Forth; North Barra, otherwise known as the Stack of Salis Kerry, thirty-five miles north of the Butt of Lewis; and the Stack, some forty miles west of Stromness. They are occasionally to be

seen on Walney Island, in Morecambe Bay; but they are not known to breed there. In Ireland, Gannets frequent the Skellig Islands, off Kerry, and the Bull Rock, off the coast of Cork. In most of these localities, they congregate in immense colonies. On Ailsa Craig and the Bull Rock, about six thousand pairs breed annually, at the present time. In former years, the colony on the latter was greater; even in 1862 it was estimated that there were twenty thousand birds on the rock; on the North Barra fifty thousand; while on the Stack, west of Stromness, twenty-five thousand couples, it is reckoned, breed every year.

Beyond our Isles, the Gannet—the sole Northern Hemisphere species—has, in Europe, breeding colonies on the most western of the Færoes, and several of the small islands off the Iceland coasts; and is found along the western coasts of Norway, and in the Baltic and North Seas. It migrates southward in October, spending the winter along the Continental shores, as far south as Madeira. It occasionally visits the Mediterranean. On the other side of the Atlantic, the bird congregates, in its usual great colonies, at a few stations; the principal being a rocky islet, in the Bay of Fundy, and on Gannet Island, in the Gulf of St. Lawrence. It ranges north to Greenland in summer, cruizing southward along the coast as far as Mexico, during the winter months. While the bulk of the Gannets migrate southwards during the colder months of the year, a few remain, through the winter, in residence on their breeding stations, but hardly in sufficient numbers to break the desolation and silence that fall upon their habitation at that season.

With spring's return, the myriad Gannets far dispersed along the shores of the calmer southern seas, are seized simultaneously with that mysterious and irresistible longing, that yearly falls upon them, for their bleaker northern homes; then suddenly, on some late April morning, the winter silence of these sea-girt isles becomes a babel, and their desolate ledges throng with their old tenants, instinct with parental yearnings. The business of making fresh, or repairing old, nests begins at once, and soon every suitable platform is occupied. The feathers of the head and neck now assume a brighter buff, greatly enhancing the Gannet's looks. The nests are composed entirely of turf, grass, and sea-weeds, mostly the commoner *Fuci;* and are either very slight structures in a depression on the ground, or conical piles, sometimes of considerable height, with a shallow cavity in the centre, in which is deposited, early in May, a single oval egg, with a rough chalky surface, and of a dull white colour. Its white colour is early lost, beneath the filth with which, in a few days, it is smeared. Indeed, soon after the arrival of the birds, the whole station becomes disgusting, and almost unapproachable, by reason of the fetid stench of the bird's excrement, and the decomposing remains of disgorged fish.

The egg is incubated by both parents in turn. The parent about to occupy the nest spreads the webs of one foot carefully on the egg, then laying the other foot as closely over its fellow as possible, it sits down, one is surprised to find, without breaking the egg. Early in July, the young Gannet is hatched.* It comes forth as a nude slate-blue, pot-bellied, soft squab, with sealed eyelids. By the time it is five or six weeks old, however, this ungainly, and unattractive, gelatinous mass, becomes clothed with long fluffy down, of the purest white, the face and throat alone remaining nude and black; it is then as charming an object, as it was previously the opposite.

During incubation, the male assiduously fetches food for his mate, not in his bill, but in his stomach, from which he disgorges it by her side.

Powerful on the wing, the Gannet makes light of the distance away that its feeding grounds may be. Mr. Seebohm says that it has been known to go, even a couple of hundred miles, from its nest to forage for its home supplies.

The young one is chiefly fed by her, with, at first, soft macerated material from her stomach, which the young one intrudes its head into her throat to obtain. As it grows it is given larger and larger morsels. When the young bird has lost all the down from its body, except on the head and neck, it presents a very comical look of wearing a full bottomed legal wig, and in this stage it goes by the name, on the Bass Rock, of "Parliamentary Goose." The white down of the chick is gradually replaced by feathers; and by the time the bird is from two to three months old, it is fully fledged, and able to leave the nest. Above, this first plumage is deep brown, each feather being tipped with a triangular white spot; while below, it is buff, the feathers being tipped with brown.

It is only in the fifth year, that the Gannet attains its fully mature plumage. It moults for the first time during its second autumn, and then in every succeeding autumn, loosing, each year, more and more of the brown mottling, till it is quite white, with the exception of the black primaries and wing-coverts, and the buff neck. The latter is always deepest in hue immediately after the moult, and during the courting season, after which it fades again.

On leaving the nest and taking to the water, the young Gannet is quite unable to fly; and it is, consequently, compelled to live, for some weeks, entirely on the surface of the sea, swimming about and foraging for itself, for it is then quite neglected by its parents.

* The Rev. H. A. Macpherson writes:—"In the cold and stormy summer of 1897, many of the young Gannets, hatched upon the Bass Rock, had donned their fluffy white plumage by the 27th of June; though the majority were still black and featherless on that date."

On land, the Gannet moves awkwardly; but in the air, it is a bird of powerful, and graceful flight, during which the bill, body, and tail form a straight line, with the legs stretched out behind. Few sights can be more impressive than a flock of these great birds, in single file, sailing high above the sea, with their outstretched wings moving by regularly alternating flappings and sailings, eagerly on the outlook for the approach, to the surface, of a shoal of herring or pilchard, which form their particular food. One may then watch what Mr. Seebohm has described, and Mrs. Hugh Blackburn has so graphically depicted with her pencil, in her "Birds of Moidart," "first one, and then another, dropping with a loud splash into the sea, as if hurled downwards with great force, disappearing for a few moments, and then rising to the surface. They may be continually seen falling from the air like large white stones, or rising from the waves to join the soaring flock above."

The Gannet's habit of diving, from a height, for fishes seen on the surface, has been taken advantage of to capture the bird. Gannets are caught in the herring loches, "with a board set on purpose to float above water; upon it a herring is fixed, which the goose perceiving, flies up to a competent height until he finds himself making a straight line above the fish, and then bending his course perpendicularly, piercing the air as an arrow from a bow, hits the board, into which he runs his bill with all his force irrecoverably, where he is unfortunately taken."

The Gannet feeds exclusively on fish, which it takes from little below the surface, never diving to any great depth as does the Cormorant. It is exceedingly voracious, and often so gorges itself that it is unable to rise from the sea.

The air cells beneath the skin in the Gannet, as in the Pelican, are widely distributed. On blowing into the upper part of the windpipe by means of properly inserted tube, the skin over the sides and lower part of the body will become completely inflated, showing that they have "a free communication with the chest;" and no doubt assist the flight of the bird by decreasing its specific gravity. Professor Owen showed, moreover, that "numerous strips of muscular fibres which pass from various parts of the surface of the body, and are firmly attached to the skin, appear to produce instantaneous expulsion of the air—at the will of the bird—from these external cells, and by thus increasing its specific gravity, enable it to descend with the rapidity necessary to the capture of a living prey, while swimming near the surface of the water."

According to Macgillivray, Gannets, in alighting, generally sweep up from below, in a long curve, "keeping their feet spread, and come down rather heavily, often finding it difficult to balance themselves, and sometimes when the place is very steep, or when another bird attacks them, flying off to try it a second time."

Gannets would appear to be very long lived birds, for the keeper of the Bass Rock informed Professor Cunningham, that he had recognised, from particular and well known marks, certain individuals that invariably returned to the same spot to breed, for upwards of forty years.

The Gannet used to be considered a delicacy for the table, being served, according to the Mickleton MSS, quoted above, doubtless to the Judges of Assize, in 1628, by the Sheriff of Northumberland. In 1660, it was also a choice dish in Scotland, (where it was known as "Gentleman"), a plucked Goose costing one shilling and eightpence of the currency of that date. Few of those, who have tried, in recent years, even the youngest and tenderest looking birds, speak of the dish as either "delicate," or "choice."

"I have seen statements," says Mr. Booth, who kept numbers of these interesting birds in captivity, "to the effect that the Gannet is unsuited to confinement, and ill repays the consideration with which it is treated. The poor creatures are by nature endowed with a voracious appetite, and if starved necessarily become ravenous and possibly spiteful. When looked after by those acquainted with their requirements, and willing to supply them with a sufficient quantity of food—mackerel, herrings, and sprats are their favourite fare—none of the feathered tribe could be found whose habits are more interesting, and but few so harmless and gentle."

END OF VOLUME THREE.

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